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MOVEMENT OF WHOLESALE PRICES IN NEW YORK CITY, 1825–1863.

By CARL H. JUERGENS.*

The price quotations upon which this study is based were secured from the Report of the Secretary of the Treasury on the state of the finances for the year ending June 30, 1863† This report furnishes maximum and minimum prices at the beginning of each month for about eighty-seven articles. few of these articles, like clover and timothy seed, were omitted because they did not seem suitable for inclusion in a consumer's index number, and a few others could not be used because the same quality or grade was not quoted throughout the entire period. Yearly quotations for seventyfour articles, however, were found to be serviceable and the following statistics are based upon these articles. The maximum and minimum monthly prices of each article were averaged in the first place, and from these monthly averages an average yearly price was computed. The results of this computation appear in Table I. Then, in the second place, using the average prices of 1860 as a base or datum line, relative prices or index numbers were computed for each year covered in the investigation. The average of these seventyfour relative prices furnishes in each year the simple index number. The relative prices and index numbers appear in Table II, and a curve of the index numbers is found in Graph I.

Table III and Graph II represent an attempt to produce a weighted index number. The weights employed and other details of the computation are shown in the table. The writer recognizes that the weights represent little more than careful guesses, and on the whole is not inclined to place much confidence in this section of the paper. Inasmuch, however, as the work of weighting was performed the results

^{*}In the preparation of the charts and tables, valuable assistance was received from Mr. H. H. Siefert.

[†] Statement No. 27, p. 283-401.

									-	1834	1835	1836	1837	7838	78 3	1840	18/21	292	1843	1844		1846	1847	184
(Beef, Prime B	87. S.B.		9.02		921		5.54 8.49				-	7.16				3 8.86	THE PERSON NAMED IN			1		5.37	8.24 10.46	-
3 Pork Prime	· 10./4						10.91			1			13.60					1	7.16 6.26	8.75	2.32		0.58	
4 4 Mess			72.95		12.60		13.46		-	/3.74	/6.39	23.07	21/3	2/34	79 72	14.83				2.28		10.82	14.46	11.12
6 Smoked Ham L	09			.07	./0	.08	.09	.10		.09	./0	./3	./3 ./6	./2	./2	1	02	06	.06	06	07	.07	09	.07
	ut 24.	226	2.97	2.89	2.52	2.33	2.82	2.88	272	2.38	2.87	3,37	3.43	-	3 83		2.58	1	2.46	-	22.03	2.83	3.4/	2.90
8 1 Macheret, 1/ 8 9 Butter, West's Davin 1	5 39 5 76	./6 ./6	5.32	5.37	5.5/		6.39	5.64	6.62			9.62		200	10 5i		12.55	0.55		10.79	1-1-	10.65	10.07	
10 Cheese, American	:07	.08			06	.07	.06	06	./6 .07	.02	.07	.09		.20	.19	.18	.07	72 07	.05	.05	14	.02	.02	02
	esh. 92			122	1.25	1.07	1.19	1.26				178		192	Z 25	1.00	1.18	1.14	.98	.98	1.04		1.36	1.17
12 Wheat Flour, Superior, 1 13 Hye, Northn B	16L 5./3 15h54			5.58	645	4.98	5.7/	5.77		4.98 66	5.69	7.51		7.95	230	529	5.50	5.99	4.94	4.67 68	.69		.99	.24
14 Rys Flour, Fine B	al. 2.93	365	3.54				3.97	-		4.37	-		6.68		2.85		3.37		3./8		1 :			
	ush 35 bl 281		.6/	.6/	.57	.35	.69	.69	.23	.66	.80	.9/	1.03	The second second	.96	.57 m	55	.60			.54	.6.9	.88	.64
	ash 32		3.24	2.78	.36	2.6/	.38	3.45	3.85	3.47	407	472		3.86	404	3.23	3.10	2.97	2.77	32	.38	3.71	.50	2.8
	b 2.96		3.27		3.00	2.67	3.77	3,38	3.22	2.9/	3.50	3.70	401	4.37		3.57		2.87	-	3.03	3.82	3.65	4,/3	3./
Kops Caffee, Brazit	./8	./2		.07	.07	./3 .//	.12	./8		15	./5	15	.08	.08	./6	-0C	24	08	07	.09	.02	07	.07	05
" Java	.20			.76	./4	.14	./2	./2 ./3	./2	.//	.12	.13	.14	.10	.13	13	12	.//	.17	.07	.07	.08	.08	.07
Tea Young Hyson	.99			93	.92	-	.98.	.88	.25	.67	.63	.64	.62	.58	.63	.58	.75	.64			.60	-		.49
3 " Souchong	63				119	1.16	1.23	.50		.30	.28	.32	.31	.28	.28	.72	.3.9	.49 .66	60	.37	.36	.39	.37	.22
5 Motasses, New Orteans, G					30	.30	.29	.30	.32	.29	.32	.43	.32	.37	.35	.26	26	27	.2.3	.30	.28	.29	.34	23
6 " Sugar House 7 " Navana	. 42				.38		.28	.32		.27	.30			.35	.32	.25	.43	.18	.20		23		.27	.22
	* .29 2608	.08		.08	.07	.08	.25	.26	.07	.06	.07	.36	.35	.3/	.29	.06	.20	.16	.05		.25	.06	.07	.19
I · · Muscomada			.09	.09	.08	.08	.06	.05	.07	.07	.08	.09	.06	.07	.07	.06	.05	.05	.06	.66	.06	.07	.06	.04
Soft Liverpool So	1 ./8 ck 26:	./B 1 2.32	./8 2.24	2.55	23/	./8 /.99	.16 1.92	200	1.84	.16 1.57	./5 /.78	.16 191	.16 1.98	.16 1.97	1.73	13	138	.10 1.67	.N 147	1.41	1.37	1.35	.10 136	1.4
Turks Island B	ish 52				.49		.5/	.49		.39	.36	.38		.40	37	.34	30		.28		.28	.33	.3/	25
Pepper, Z.	The second second	.77	./6	./6	./3	./3	./4	./5	./0	.07	07	.08		.07	.09	.02	.07	.07	.08	10	./0	./0	.06	-
Raisins, Muscatel B. Nutmeg L			2.46 1.39		2.96		2.48 1.49		2./3	1.22	2.70	2.32		1.64	1.03 1.03	.87	. 79	1.35	1.70	1.01		2.04 1.42		
5 Olive Öel Ga	4 .94	.64	.97	.79	.00	.96	.93	.97	1.04	.94		1.12	.95	1.77	1.05	1.09	1.32	.94	.85	.93	.97	.88	1.17	1.0
Wool Common L.	533 .33			.25	.25	.22	.28 .55	.28	.32	.30	.34	.43	42	.3/	.43	.83 .38	.27	.19	.20	.30	.27 .3/	.24	.26	.2
Wool Merino	.49	.49	.39		.35	.40	.54	.47	.49	.49	.55	.59	1	.00 .00	. ~\s_ 	.39	.73	.32	.21	.40	.35	32	.35	.3
Cotton, Upland .	./8			.10	.09	.10	.09	.10	./2	./3	./8	./7	./2	/	7.8	.10	./2	.08	.07		.06	.07		.a
Sheety, Russia White, 1			9.31			10.03	11.25 9.84		10.52 8.71	9.09 2.57	9.74	11.19	11.71	11.46 9.56	3.17	10.3E	10 75 6.25	-	1	-		9.50	-	
Wides, W. Indies L	614	./2		1.42		./2	./3	/	.//	.70	/r	.//	.10	.09		-11		.//		1.11	./2	.10	.10	.0
4 " LåPleta	./8	./7	-	.16	./5	./5	./6	./5	./4	./3	./4	./3	./4	./4	.15	.75	.14	12	./2	./2	./2	./2	12	.0
5 Chather Hemlock Sals. 6 Furs Beaver	- 23 - 49		20	5.25	202		.22 5.34	.20 466	.18 427	./6 435	17	./8 5.3/	.19 4.50	4.50	450	3.06	.21 3.27	298	3.00		3.06	254		2.
7 Comit Virginia 7	on 9.17	11.42	11.33	10.93	10.75	9.05	2.08	10.21	684	6.00	6.71	8.54	9.63	7.90	3.10	275	7.56	6.35	5.11	5.06	5.33	15.73	5.77	5.4
	non /2 /3		-	.80	11.75	9.43	10 0 .23	12.02	10 19 .75	9.21	9.60 .69	10.65 .94	10.66 .96	10.14 .88	0.25 80	8.76 .25	8.57 68	7.77 .57	7.07 .56	8.68	9.30	7.57	-	8.7
1 - 1 - 7 - 7 - 1 - 1 - 1 - 1 - 1 - 1 -	et 7.95				238			238		3.50		7.00			5.572	6.60	5.50	/3.50			-	11.50		
1 Nails, Wrought L		H		./4	./3	./3	./3	./3	./,3	./2	./2	./2	.14	./3	./4	.14	./4	.78	.#	.//	.//	.//	./2	
iż Copper, Pig ^ iż Tobacco Kentucku /	.06		.05		.06		./8 .05					.21			.17		.18	.05			.04	.05	.05	
4 " Manufel #/	./6	.12	.12	./2	./2	.//	.//	.//	.11	.12	./3	.16	.16	.16	æ	./3	./4	.10	./3		_	./3	-	THE PERSON NAMED IN
Whiskey, Domestic Ga Brandy, Cognac			.30 1.54				.32			.25			.37		.36					.24		2.83		
Rum, Jamaica	.86	· · · · · · · · · · · · · · · · · · ·	1.07									THE REAL PROPERTY AND				1.56			1.46	1.54	1.62	1.61	1.66	1.6
Gin, Scheidam	79	.78	.94	.97	.96	103	1.14	1.15	1.16	1.11	1.18	1.09	1.20	1.19	1.15	1.13	1.09		1.23			7.30		
Wine Port			7.66 2.75		**********					The second second			a grand and			1.16		NAME OF TAXABLE PARTY.	1.25	1.08		1.55		
	sk 246.	3 23.92	22.46	22 00	19 33	18.67	2433	21.92	17.18	/433	15.30	15.41	15.75	15.71	20.00	20.00	15.00	12.71	12.75	5 /9.0	2250	22.00	229.	5 28
			6./3	-						5.75						5.75			5.76			6.35		
33 Tallous, American L. 34 Canales, Monta "	.08			./2	.//	.06	.09	.09		.07	.11	.09	-	.10	.12		.08	.07		.//	.10	OF STREET, SALES	.//	1.7
is ". Sperm	.35	.34	.30	.26	.23	.23	.28	.32	.34	.3/	.32	34	.32	.32	.40	.40	.38	.29	.26	.3/	-	.27	-	
6 Soap, N.Y. White	1.07	.07		.06	.06	.05	.06		.06	.08	.06	.13		.06	.06 .73	.06	.06	.06	.06	.05		.05	.05	.00
8 Turpentine Go		.30		.35	.36		.29	.37		.47				.70		.23	.37	.32	.34	.36		.48		.36
9 Zinseed Oil		-		.79		.80	.96	.9/	.9/		1.09			.79	.75		.86	89			.74			
Paint Red Lead Gr			32	32		34	6.57 33	6.75 .28	6.65 .26	6.50 .27	*	8.00 .47	Actor		.33		233 32	6.25	5.50 .34			.33		
" Sperm, Summer, "	-		.63	.74	.66	.70	.25	.79	.90	.76	.85	.88	.86			1.03	.96	.27	.66	.90	.90	.9/	1.04	1.0
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	9. .0 ./·	13 18 19	9.33 .08 .10 .16	9.38 .11 .13 .16	9.10 .12 .14 .14	8.80 .12 .15 .15	8.75 .16 .18 .19	8.84 .16 .21 .22	 .18 .23 .22	.27 .26	.33 .29	.24 .24	.26 .25	.21 .24 .21	.18 .20 .19	.25 .23	.29 .29
	9. .0 ./• 2.4	13 18 19 4 25	9.33 .08 .10 .16 2.25	9.38 .11 .13 .16 2.25	9.10 .12 .14 .14 2.25	8.80 ./2 ./5 ./5 2.25	8.75 .16 .18 .19 2.00	8.84 .16 .21 .22 1.35	.18 .23 .32 1.31	.27 .26 1.42	.33 .29 1.79	.24 .24 1.13	.26 .25 /.30	.21 .24 .21 1.10	.18 .20 .19 1.10	.25 .23 1.47	.29 .29 2.77
	9. .0 ./• 2.4	13 18 19 4 25	9.33 .08 .10 .16 2.25	9.38 .11 .13 .16 2.25	9.10 .12 .14 .14 2.25	8.80 ./2 ./5 ./5 2.25	8.75 .16 .18 .19 2.00	8.84 .16 .21 .22 1.35	.18 .23 .32 1.31	.27 .26 1.42	.33 .29 1.79	.24 .24 1.13	.26 .25	.21 .24 .21 1.10	.18 .20 .19 1.10	.25 .23 1.47	.29 .29 2.77
	9. .0 .1. 2.4	13 18 19 4 25 40	9.33 .08 .10 .16 2.25 5.58	9.38 .11 .13 .16 2.25 5.73	9.10 .12 .14 .14 2.25 5.22	8.80 ./2 ./5 ./5 2.25 5.45	8.75 .76 .78 .79 2.00 5.72	8.84 .16 .21 .22 1.35 6.92		.27 .26 /.42 5.88	.33 .29 1.79 6.17	.24 .24 1.13 5.23	.26 .25 /.30 5:3/	.21 .24 .21 1.10 5.52	.18 .20 .19 1.10 5.25	.25 .23 1.47 5,70	.29 .29 2.77 8.67
	9. .0 ./. 2.4 5.4	13 18 4 35 10	9.33 .08 .10 .16 2.25 5.58 8.25	9.38 .// ./3 ./6 2.25 5.73 8.30	9.10 .12 .14 .14 2.25 5.22 244	8.80 .12 .15 .15 2.25 5.45 7.99	8.75 .76 .78 .79 2.00 5.72 9.66	8.84 .16 .21 .22 1.35 6.92 10.38		.27 26 1.42 \$88 7.61	.33 .29 1.79 6.17 268	.24 .24 1.13 5.23 7.34	.26 .25 /30 53/ 298	.21 .24 .21 /.10 5,52 8.87	.18 .20 .19 1.10 5.25 6.25	.25 .23 /.47 5,70 6.05	.29 .29 2.77 8.67 8.51
5	9. .0 .7. 2.4 5.2 8.	13 18 19 2 35 10 71	9.33 .08 .10 .16 2.25 5.58 8.25	9.38 ./1 ./3 ./6 2.25 5.23 8.30 .42	9.10 .12 .14 .14 2.25 5.22 7.44	8.80 ./2 ./5 ./5 2.25 5.45 7.99	8.75 .76 .79 2.00 5.72 9.66	8.84 .21 .22 /.35 6.92 /0.38	.23 .23 .22 .7.31 .6.33 8.36 .59	.27 26 1.42 \$.88 7.81	.33 .29 1.79 6.17 2.68 .56	.24 .24 1.13 5.23 7.34 .48	.26 .25 /30 53/ 298 45	21 24 21 1.10 5.52 8.87	.10 .20 .19 1.10 5.25 6.25	.25 .23 !.47 5; 70 6.05	.29 29 2.77 8.67 8.51
5	9. .0 .7. 2.4 5.2 8.	13 18 19 2 35 10 71	9.33 .08 .10 .16 2.25 5.58 8.25	9.38 ./1 ./3 ./6 2.25 5.23 8.30 .42	9.10 .12 .14 .14 2.25 5.22 7.44	8.80 ./2 ./5 ./5 2.25 5.45 7.99	8.75 .76 .79 2.00 5.72 9.66	8.84 .21 .22 /.35 6.92 /0.38	.23 .23 .22 .7.31 .6.33 8.36 .59	.27 26 1.42 \$.88 7.81	.33 .29 1.79 6.17 2.68 .56	.24 .24 1.13 5.23 7.34 .48	.26 .25 /30 53/ 298	21 24 21 1.10 5.52 8.87	.10 .20 .19 1.10 5.25 6.25	.25 .23 !.47 5; 70 6.05	.29 29 2.77 8.67 8.51
5	9. .0 .7. 2.4 5.2 8.	13 18 19 2 35 10 71	9.33 .08 .10 .16 2.25 5.58 8.25 47 12.80	9.38 ./3 ./6 2.25 5.73 8.30 42 /3.50	9.10 .12 .14 .14 2.25 5.22 244 .37 13.20	8.80 ./2 ./5 ./5 2.25 5.45 7.99 .40 /0.80	8.75 .76 .78 .79 2.00 5.72 9.66 .65 70.80	8.84 .16 .21 .22 /.35 6.92 /0.38 .21 /2.70	./8 .23 .22 /.3/ 6.33 8.36 .59	.27 .26 /.42 \$.88 7.8/ .59	.33 .29 1.29 6.17 2.68 .56 12.00	.24 1.13 5.23 7.34 .48 11.50	.26 .25 /.30 53/ 238 45 //.30	.21 .24 /.10 5.52 8.87 .42 /3.10	.18 .20 .19 .10 .5.25 .6.25 .44	.25 .23 /.47 5.70 6.05 .57 /5.50	.2.9 .2.97 8.67 8.51 .74 17.00
5	9. .0 ./. 5.2 8. .5 //.	13 18 19 25 10 71 9	9.33 .08 .10 .16 2.25 5.58 8.25 .47 12.80 9.0	9.38 .13 .16 2.25 5.13 8.30 .42 13.50	9.10 .12 .14 .14 2.25 5.22 244 .37 13.20 9.0	8.80 .12 .15 .15 2.25 5.45 7.99 .40 10.80 7.2	8.75 ./6 ./9 2.00 5.72 9.66 .63 /0.80	8.84 .16 .21 .22 1.35 6.92 10.38 .71 12.70	.23 .23 .23 .31 6.33 8.36 .59 .59 .525	.27 .26 .42 \$.88 7.81 .59 .53	.29 1.29 6.17- 7.68 .56 12.00	.24 1.13 5.23 7.34 48 11.50	.26 .25 /30 53/ 298 45	.21 .24 /.10 5.52 8.87 .42 /3.10	.10 .20 .19 1.10 5.25 6.25	.25 .23 /.47 5.70 6.05 .57 /5.50	.29 29 2.77 8.67 8.51
,	9. .0 .0 .2. .5 .5 .5 .7 .7	13 18 19 10 27 10 50 50	9.33 .08 .10 .16 2.25 5.58 8.25 47 12.80 9.0	9.38 /1 .13 .16 2.25 5.23 8.30 .42 /3.50 .90	9.10 .12 .14 .2.25 5.22 .244 .37 .13.20 .9.0 .17	8.80 ,12 ,15 ,16 2.25 5.45 7.99 ,40 ,0.80 2.2	8.75 ./6 ./8 ./9 2.00 5.72 9.66 .65 /0.80 .09	8.84 .16 .21 .22 /.35 6.92 /0.38 .21 /2.70 .09	.18 .23 .22 1.31 6.33 8.36 .59 15.25 .09	.27 .26 .42 \$.88 7.81 .59 .15.40 .07	.33 .29 1.79 6.17 7.68 .56 .20 .06	.24 1.13 5.23 7.34 48 11.50 .05	.26 .25 /.30 5.3/ 7.98 .45 //.30 .04	.21 .24 .21 7.10 5.52 8.87 .42 13.10 .04	.18 .20 .19 1.10 5.25 6.25 .44 16.00	.25 .23 1.47 5.70 6.05 .57 15.50	.29 2.17 8.67 8.51 78 77.00
5	9. .0 ./. 5.2 8. .5 //.	13 18 19 10 27 10 50 50	9.33 .08 .10 .16 2.25 5.58 8.25 .47 12.80 9.0	9.38 .13 .16 2.25 5.13 8.30 .42 13.50	9.10 .12 .14 .2.25 5.22 .244 .37 .13.20 .9.0 .17	8.80 .12 .15 .15 2.25 5.45 7.99 .40 10.80 7.2	8.75 ./6 ./9 2.00 5.72 9.66 .63 /0.80	8.84 .16 .21 .22 1.35 6.92 10.38 .71 12.70	.23 .23 .23 .31 6.33 8.36 .59 .59 .525	.27 .26 .42 \$.88 7.81 .59 .53	.29 1.29 6.17- 7.68 .56 12.00	.24 1.13 5.23 7.34 48 11.50	.26 .25 /.30 53/ 238 45 //.30	.21 .24 .21 7.10 5.52 8.87 .42 13.10 .04	.18 .20 .19 1.10 5.25 6.25 .44 16.00	.25 .23 1.47 5.70 6.05 .57 15.50	.2.9 .2.97 8.67 8.51 .74 17.00
5	9. .6 .0 .7 2. .5 .8 .8 .7 .7 .7 .7 .7	13 18 19 19 13 10 10 17 19 15 10 16 16 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	9.33 .08 .10 .16 2.25 5.58 8.25 .47 12.80 9.0 .17	9.38 ./1 ./8 .2.25 5.73 8.30 .42 ./3.50 ./2 ./2	9.10 .12 .14 .14 2.25 5.22 244 .37 13.20 9.0 .17	# 80 ./2 ./5 ./6 2.25 5.45 2.99 .40 ./0.80 7.2 .20	8.75 .16 .19 2.00 5.72 9.66 .65 .09 .24	8.84 .16 .21 .22 /.35 6.92 /0.38 .71 /2.70 .09 .29		.27 .26 .1.42 .5.88 .7.81 .59 .15.40 .07 .25	.89 1.79 6.17 7.68 .56 12.00 .06 .26	.24 1.13 5.23 7.34 48 11.50 .05 .23	.26 .25 /.30 5.3/ 2.98 .45 //.30 .04	.21 .21 1.10 5.52 8.87 42 13.10 .04 .22	.18 .20 .19 1.10 5.25 6.25 .44 /6.00 .04	.25 .33 1.47 5.70 6.05 .37 15.50 .04	.29 2.72 8.67 8.51 .74 17.00 .33
5	9. .0 .1. 2.2 5.8 .8. .5. .11. .11. .12. .14.	13 18 19 25 20 21 9 50 4	9.33 .08 .10 .16 2.25 5.58 8.25 .42 12.80 9.0 .17 .06 .14	9.38 ./1 ./3 ./6 2.25 3.73 8.30 .42 ./3.50 ./2 ./2 ./2	9.10 .12 .14 .2.25 5.22 .244 .37 .13.20 .17 .09 .26	8.80 ./2 ./5 ./6 2.25 5.45 7.99 .40 ./0.80 .20 .20	8.75 .16 .18 .19 2.00 5.72 9.66 .65 10.80 .09 .24 .07	8.84 .16 .21 .22 1.35 6.92 .10 38 .71 1270 .09 .29 .08	.18 .23 .22 1.31 6.33 8.36 .59 15.25 .09 .24 .10	.27 .26 .42 .588 .781 .59 .15.40 .07 .25 .1V	.33 .29 1.29 6.17 .268 .26 .26 .26 .14	.24 1.13 5.23 7.34 48 11.50 05 .23 .11	.86 .25 /.30 5.3/ 2.98 .45 //.30 .04 .09 .23	2/ .24 .21 .20 5.52 8.87 42 .370 .04 .22 .08	.18 .20 .19 1.10 5.25 6.25 .41 16.00 .04	.25 .23 1.47 5.70 6.05 .57 .550 .04 .15	.29 .29 2.77 8.67 8.51 .74 17.00 .33 .21
5	9. 0 0 0 2. 0 5. 0 8 5 11. 0 12. 0 12. 0	13 18 4 35 10 71 9 50 4	9.33 .08 .10 .16 2.25 5.58 8.25 .42 12.80 .17 .06 .14	9.38 .// ./3 ./6 2.25 3.73 8.30 .42 ./3.50 ./7 .08 .2/ .25	9.10 .12 .14 .25 5.22 .244 .37 .13.20 .9.0 .17 .09 .26	8.80 ./2 ./5 ./5 2.25 5.45 7.99 .40 ./0.80 7.2 .20 .0/ .20	8,75 .76 .78 .200 5.72 9.66 .65 .70,80 .09 .24 .07 .20 .25	8.84 .16 .21 .22 /.35 6.92 .10.38 .21 /.270 .09 .29 .08 .19		.27 .26 .42 .588 .59 .59 .07 .25 .1V .22 .32	33 29 1,79 6,17 7,68 26 12,00 .06 .26 .14 .28	.24 1.13 5.23 7.34 48 11.50 .05 .23 .11 .24	.25 /.30 5.3/ 2.98 45 //.30 .04 .09 .23 .26	2/ .24 /.10 5.52 8.87 /3/0 .04 .22 .08 .20 .23	.18 .20 .19 1.10 5.25 6.25 .44 16.00 .04 .09	.2.5 .2.3 47 .5.70 .6.05 .5.7 .5.50 .04 .15 .42 .28	.29 2.17 8.67 8.51 74 1200 33 .21 .50 .51
5	9. 0.0 2.4 5.0 8. 5.1 1.1 2.4 2.4 2.4	13 18 4 35 10 71 9 50 4	9.33 .08 .10 .16 2.25 5.58 8.25 .47 12.80 .12 .06 .14 .24 2.81	9.38 .13 .16 2.25 5.23 8.30 .42 .13.50 .90 .21 .25 .25	9.10 .12 .14 .25 5.22 .244 .37 .13.20 .90 .17 .09 .26 .23 .273	8.80 ./2 ./5 ./5 2.25 5.45 7.99 .40 ./0.80 7.2 .20 .20 .22 .22 .2.77	8,75 .76 .78 .200 5.72 9.66 .65 .70,80 .09 .24 .07 .20 .25 4.78	8.84 .16 .21 .22 /.35 6.92 .10.38 .21 /.270 .09 .29 .08 .19 .32 5.36	.18 .23 .22 .1.31 6.33 8.36 .59 .15.25 .09 .20 .20 .38 6.10	.27 26 1.42 5.88 7.81 5.9 15.40 07 .25 .11 .22 .32 6.30	33 29 1,79 6,17 7,68 56 12,00 .06 .26 .28 .28 .28 .28	.24 .24 .1.13 5.23 7.34 48 .11.50 .05 .23 .11 .24 .22 5.36	.26 .25 .130 .531 .258 .45 .130 .04 .09 .23 .26 .494	.21 .24 .21 .25 .25 .87 .42 .370 .04 .22 .09 .23 .500	.18 .20 .19 1.10 5.25 6.25 .44 /6.00 .04 .09 .24 .18	.25 .23 .47 .570 .6.05 .57 .550 .04 	.29 2.77 8.67 8.61 74 17.00 .33 .21 .50 .51 783
5	9. 0.0 2.4 5.0 8. 5.1 1.1 2.4 2.4 2.4	13 18 4 35 10 71 9 50 4	9.33 .08 .10 .16 2.25 5.58 8.25 .47 12.80 .12 .06 .14 .24 2.81	9.38 .13 .16 2.25 5.23 8.30 .42 .13.50 .90 .21 .25 .25	9.10 .12 .14 .25 5.22 .244 .37 .13.20 .90 .17 .09 .26 .23 .273	8.80 ./2 ./5 ./5 2.25 5.45 7.99 .40 ./0.80 7.2 .20 .20 .22 .22 .2.77	8,75 .76 .78 .200 5.72 9.66 .65 .70,80 .09 .24 .07 .20 .25 4.78	8.84 .16 .21 .22 /.35 6.92 .10.38 .21 /.270 .09 .29 .08 .19 .32 5.36	.18 .23 .22 .1.31 6.33 8.36 .59 .15.25 .09 .20 .20 .38 6.10	.27 26 1.42 5.88 7.81 5.9 15.40 07 .25 .11 .22 .32 6.30	33 29 1,79 6,17 7,68 56 12,00 .06 .26 .28 .28 .28 .28	.24 .24 .1.13 5.23 7.34 48 .11.50 .05 .23 .11 .24 .22 5.36	.26 .25 .130 .531 .258 .45 .130 .04 .09 .23 .26 .494	.21 .24 .21 .25 .25 .87 .42 .370 .04 .22 .09 .23 .500	.18 .20 .19 1.10 5.25 6.25 .44 /6.00 .04 .09 .24 .18	.25 .23 .47 .570 .6.05 .57 .550 .04 	.29 2.77 8.67 8.61 74 17.00 .33 .21 .50 .51 783
5	9. .0 .0 .2. .5 .8 .5 .7 .7 .2 .2 .2 .1 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2	13 18 19 25 27 27 29 50 4 57 35	9.33 .08 .10 .16 .2.25 .5.58 .8.25 .42 .12.80 .17 .06 .14 .24 .251 .168	9.38 .13 .16 2.25 3.73 8.30 .42 .13.50 .90 .17 .08 .21 .25 .25 .27 .25 .27 .25 .27 .25 .27 .25 .27 .25 .25 .25 .25 .25 .25 .25 .25 .25 .25	910 .12 .14 .24 5.22 .244 .37 .13.20 .90 .17 .09 .26 .23 .2.78 1.45	6.80 .12 .15 .16 2.25 5.45 2.99 .40 .10.80 .20 .20 .20 .20 .22 .20 .22 .25	8.75 ./6 ./8 ./9 2.00 5.72 9.66 .65 ./0.90 .24 .07 .20 .25 4.78 1.40	8.84 .16 .22 1.35 6.92 10.38 .21 12.70 .09 .29 .09 .19 .32 5.36 1.63	18 23 22 1.31 6.33 8.36 59 15.25 09 24 10 20 38 6.10 1.86	.27 .26 .588 .781 .59 .15.40 .07 .25 .17 .29 .32 .6.30 .184	33 .29 1.29 8.17 2.68 .26 .20 .26 .26 .28 .29 6.19 1.95	.24 .24 .1.13 5.23 7.34 .1.50 .05 .23 .11 .24 .22 .536 .150	.26 .25 .230 .531 .258 .45 .1/30 .04 .09 .23 .26 .494 ./38	21 21 21 5.52 8.87 42 13.10 04 .22 .08 .23 5.00 1.41	.18 .20 .19 .10 5.25 6.25 .44 .16,00 .04 .09 .24 .18 5.10 1.40	.25 .23 1.47 5.70 6.05 .57 15.50 .04 .15 .28 5.60 1.89	.29 2.77 8.67 8.51 79 77.00 .33 .21 .59 .59 .283 2.77
; ;	9.0 10 2.0 5.2 8.5 11.0 1.0 1.0 1.0 1.0	13 18 18 18 18 18 18 18 18 18 18 18 18 18	9.33 .08 .10 .16 .2.25 .5.58 .8.25 .42 .12.80 .17 .06 .14 .24 .251 .168 .1.22	9.38 ./1 ./6 2.25 5.73 8.30 .42 ./3.50 .90 .21 .26 2.79 1.56 1.08	9,10 .12 .14 .2,25 5,22 .244 .37 .13,20 .90 .17 .09 .26 .23 .2,78 .145 .91	6.80 .12 .15 .16 2.25 5.45 2.99 .40 .0.80 .20 .20 .20 .20 .22 .27 .30 .66	8,75 .16 .18 .200 5.72 9.66 .65 10.90 .24 .07 .20 .25 4.78 1.40 1.18	8.84 .16 .22 1.35 6.92 10.38 .21 12.70 .09 .29 .09 .29 .32 5.36 1.35	18 23 22 1.31 6.33 8.36 59 15.25 09 24 10 20 38 6.10 1.86 1.86 1.88	.27 .42 \$.88 7.81 .59 .15.40 .07 .25 .17 .22 .23 .23 .24 .32 .43 .55	33 .29 1.29 6.17 268 56 .12 00 .26 .28 .27 6.19 1.35 1.29	.24 .24 .1.13 5.23 7.34 .48 .11.50 .05 .23 .11 .24 .22 .5.36 .150 .99	.26 .25 /.30 5.3/ 2.58 .45 //.30 .04 .09 .23 .26 .4.94 /.38	.21 .24 .21 .20 5.52 8.87 .42 .310 .42 .09 .20 .23 .500 1.41	.18 .20 .19 1.10 5.25 6.25 44 16.00 .04 .09 .24 .18 5.10 1.40 1.40	.25 .23 .47 5,70 6.05 .57 .75,50 .04 .15 .42 .28 5.60 1.89 1.75	.29 2.77 8.67 9.51 72.00 .33 2.17 2.63 2.77 2.98
; ;	9.0 10 2.0 5.2 8.5 11.0 1.0 1.0 1.0 1.0	13 18 18 18 18 18 18 18 18 18 18 18 18 18	9.33 .08 .10 .16 .2.25 .5.58 .8.25 .42 .12.80 .17 .06 .14 .24 .251 .168 .1.22	9.38 ./1 ./6 2.25 5.73 8.30 .42 ./3.50 .90 .21 .26 2.79 1.56 1.08	9,10 .12 .14 .2,25 5,22 .244 .37 .13,20 .90 .17 .09 .26 .23 .2,78 .145 .91	6.80 .12 .15 .16 2.25 5.45 2.99 .40 .0.80 .20 .20 .20 .20 .22 .27 .30 .66	8,75 .16 .18 .200 5.72 9.66 .65 10.90 .24 .07 .20 .25 4.78 1.40 1.18	8.84 .16 .22 1.35 6.92 10.38 .21 12.70 .09 .29 .09 .29 .32 5.36 1.35	18 23 22 1.31 6.33 8.36 59 15.25 09 24 10 20 38 6.10 1.86 1.86 1.88	.27 .42 \$.88 7.81 .59 .15.40 .07 .25 .17 .22 .23 .23 .24 .32 .43 .55	33 .29 1.29 6.17 268 56 .12 00 .26 .28 .27 6.19 1.35 1.29	.24 .24 .1.13 5.23 7.34 .48 .11.50 .05 .23 .11 .24 .22 .5.36 .150 .99	.26 .25 /.30 5.3/ 2.58 .45 //.30 .04 .09 .23 .26 .4.94 /.38	.21 .24 .21 .20 5.52 8.87 .42 .310 .42 .09 .20 .23 .500 1.41	.18 .20 .19 1.10 5.25 6.25 44 16.00 .04 .09 .24 .18 5.10 1.40 1.40	.25 .23 .47 5,70 6.05 .57 .15,50 .04 .15 .42 .28 5.60 1.89 1.75	.29 2.77 8.67 9.51 72.00 .33 2.17 2.63 2.77 2.98
5 7 7	9. 1. 2. 1.	13 19 19 13 13 13 13 13 13 13 13 13 13 14	9.33 .08 .10 .16 .225 .558 .8.25 .42 .12.80 .9.0 .14 .24 .261 .168 .1.22 .156	9.38 // // // // // // // // // /	9.10 .12 .14 .14 .2.25 .5.22 .244 .37 .13.20 .17 .09 .26 .23 .2.73 .145 .91	8.80 12 15 16 2.25 5.45 2.80 2.0 07 2.0 2.2 2.77 7.50 6.66 7.38	8.75 ./6 ./8 ./9 2.00 5.72 8.66 .65 .09 .24 .07 .20 .25 4.78 1.40 1.18	8.84 .16 .22 .25 .6.92 .10.38 .71 .12.70 .09 .29 .08 .19 .32 5.36 1.63 1.35	18 23 22 7.37 6.33 8.36 59 18.26 10 20 38 6.70 1.86 1.38 2.08	.27 .26 .288 .281 .59 .1540 .25 .17 .22 .32 .6.30 .184 .155 .279	33 .29 1.29 6.17 268 .26 .26 .26 .26 .28 .29 6.19 7.95 7.29 3.00	.24 .24 .1.13 .5.23 .134 .48 .11.50 .23 .11 .24 .22 .5.36 .150 .99 .295	.26 .25 .30 .53/ .288 .48 .1/30 .04 .09 .23 .26 .294 ./38 .95 .292	.21 .24 .21 .210 .5.52 .8.87 .42 .3.10 .04 .22 .08 .20 .23 .5.00 .41 .90 .29	.10 .20 .19 1.10 5.25 6.25 .44 16.00 .04 .09 .24 .18 5.10 1.40 1.40 1.40	25 .23 1.47 5,70 6.05 .57 15.50 .04 .15 .42 .28 .5.60 1.69 1.75 2.25	.29 .29 2.72 8.67 8.67 7.20 .33 .21 .39 .39 .21 .298 2.77 2.98 3.08
7	9. 6 0 1. 2. 6 1. 6 1. 6 1. 6 1. 6 1. 6 1. 6 1	13 18 19 13 13 13 13 14 13 14 14 14 14	9.33 .08 .10 .16 .225 5.58 8.25 .47 12.80 9.0 .19 .06 .14 .26 1.24 .158 1.22	9.38 11 18 16 2.25 3.50 8.30 90 90 90 21 25 279 1.56 1.08 1.25 1.08	9.10 .12 .14 .14 .2.55 .5.22 .244 .37 .13.20 .19 .25 .25 .27 .27 .31 .45 .45 .45	8.80 12 15 16 2.25 5.45 2.90 40 10.80 7.2 20 20 20 20 40 40 10.80 7.2 20 40 40 40 40 40 40 40 40 40 4	8,75 .16 .18 .200 .572 .866 .65 .09 .24 .07 .20 .25 .4.28 .1.40 .1.18 .1.38 .1.38	8.84 .16 .21 .22 .1.35 .6.92 .10 .09 .29 .09 .19 .32 .19 .32 .163 .135 .163 .135	18 23 22 1.31 6.33 8.36 5.9 15.25 09 24 10 20 38 6.10 1.86 2.38 2.38	.27 .26 .42 .588 .781 .59 .15 40 .07 .25 .17 .22 .32 .6.30 .184 .1.55 .2.79 .282	33 .29 1.79 8.17 7.68 .26 .26 .26 .28 .27 6.19 1.83 1.29 3.00 3.37	.24 .24 .13 5.23 7.34 48 11.50 .05 .23 .11 .24 .22 5.36 1.50 .99 .285 3.29	.26 .25 .30 5.31 7.38 45 .1.30 .04 .09 .23 .26 .294 .38 .95 .292 3.50	21 24 21 1,10 5,52 8,87 42 13,10 04 22 08 20 23 5,00 1,41 90 2,98 3,67	.18 .20 .19 .10 .5.25 .6.25 .44 .16.00 .04 .09 .24 .18 .5.10 .1.40 .1.40 .1.41 .4.25	25 .23 .47 .570 .6.05 .57 .550 .04 	.29 .29 2.72 8.67 .24 .7200 .33 .21 .30 .31 .298 .277 2.98 3.08 4.25
5 7 7 7	9. 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	13 13 13 13 13 13 13 13 13 13 13 13 13 1	9.33 .08 .10 .16 .225 5.58 8.25 .47 12.80 9.0 .19 .24 .25 .14 .26 .14 .26 .15 .14 .26 .15 .15 .16 .28 .16 .28 .17 .18 .28 .28 .28 .17 .28 .28 .28 .28 .28 .28 .28 .28 .28 .28	9.38 11 18 18 2.25 3.50 42 13.50 90 90 90 21 25 2.79 1.56 1.08 1.25 1.08 1.25 1.08 1.25	9.10 .12 .14 .14 .2.55 .5.22 .244 .37 .13.20 .19 .25 .27 .27 .31 .45 .45 .45 .45 .45 .45 .45 .45 .45 .45	8.80 12 15 16 2.25 5.45 2.90 40 10.80 7.2 20 20 20 20 40 40 10.80 7.2 20 40 40 40 40 40 40 40 40 40 4	8,75 .16 .18 .200 .572 .866 .65 .09 .24 .07 .20 .25 .4.20 .1.40 .1.18 .1.38 .1.38 .1.38 .1.38 .1.38	8.84 .16 .21 .22 .1.35 6.92 .10 .09 .29 .09 .19 .32 .19 .32 .135 .163 .135 .163 .135	18 23 22 1.31 6.33 8.36 5.9 15.25 09 24 10 20 38 6.10 1.86 2.33 2.33 4.333	.27 .26 .142 .588 .781 .59 .55 .07 .26 .32 .6.30 .184 .55 .278 .282 .550,00	33 29 1.79 6.17 7.68 .56 .12 00 .26 .26 .27 6.19 1.95 1.29 3.30 3.37	.24 .24 .1.3 5.23 .7.34 .95 .05 .23 .11 .24 .22 5.36 .1,50 .99 .2.95 .3.29 5.667	.26 .25 .30 .53/ .28 .45 .04 .09 .23 .26 .494 .38 .95 .250 .250 .5250	21 24 21 21 21 25 22 8.87 42 42 33 60 23 50 1.41 90 23 3.67 52 56 56 56 57 57 57 57 57 57 57 57 57 57 57 57 57	.10 .20 .19 .1.10 .5.25 .6.25 .44 .16.00 .04 .18 .5.10 .1.40	25 -33 147 570 6.05 -57 15,50 -04 -15 -28 5.60 1.75 2.75 4.25 5.250	28 272 8.67 8.67 8.51 74 7200 .33 .21 .28 2.77 2.88 3.08 4.25 63.17
5 5 7 7 7	9. 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	13 13 13 13 13 13 13 13 13 13 13 13 13 1	9.33 .08 .10 .16 .225 5.58 8.25 .47 12.80 9.0 .19 .24 .25 .14 .26 .14 .26 .15 .14 .26 .15 .15 .16 .28 .16 .28 .17 .18 .28 .28 .28 .17 .28 .28 .28 .28 .28 .28 .28 .28 .28 .28	9.38 11 18 18 2.25 3.50 42 13.50 90 90 90 21 25 2.79 1.56 1.08 1.25 1.08 1.25 1.08 1.25	9.10 .12 .14 .14 .2.55 .5.22 .244 .37 .13.20 .19 .25 .27 .27 .31 .45 .45 .45 .45 .45 .45 .45 .45 .45 .45	8.80 12 15 16 2.25 5.45 2.90 40 10.80 7.2 20 20 20 20 40 40 10.80 7.2 20 40 40 40 40 40 40 40 40 40 4	8,75 .16 .18 .200 .572 .866 .65 .09 .24 .07 .20 .25 .4.20 .1.40 .1.18 .1.38 .1.38 .1.38 .1.38 .1.38	8.84 .16 .21 .22 .1.35 6.92 .10 .09 .29 .09 .19 .32 .19 .32 .135 .163 .135 .163 .135	18 23 22 1.31 6.33 8.36 5.9 15.25 09 24 10 20 38 6.10 1.86 2.33 2.33 4.333	.27 .26 .142 .588 .781 .59 .55 .07 .26 .32 .6.30 .184 .55 .278 .282 .550,00	33 29 1.79 6.17 7.68 .56 .12 00 .26 .26 .27 6.19 1.95 1.29 3.30 3.37	.24 .24 .1.3 5.23 .7.34 .95 .05 .23 .11 .24 .22 5.36 .1,50 .99 .2.95 .3.29 5.667	.26 .25 .30 5.31 7.38 45 .1.30 .04 .09 .23 .26 .294 .38 .95 .292 3.50	21 24 21 21 21 25 22 8.87 42 42 33 60 23 50 1.41 90 23 3.67 52 56 56 56 57 57 57 57 57 57 57 57 57 57 57 57 57	.10 .20 .19 .1.10 .5.25 .6.25 .44 .16.00 .04 .18 .5.10 .1.40	25 -33 147 570 6.05 -57 15,50 -04 -15 -28 5.60 1.75 2.75 4.25 5.250	28 272 8.67 8.67 8.51 74 7200 .33 .21 .28 2.77 2.88 3.08 4.25 63.17
5 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	9. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6.	13 18 19 19 10 17 19 19 19 19 19 19 19 19 19 19 19 19 19	9.33 .08 .10 .16 .225 5.58 8.25 .47 .12.80 9.0 .17 .24 .25 .14 .26 .14 .25 .15 .15 .15 .16 .25 .16 .25 .16 .25 .25 .25 .25 .25 .25 .25 .25 .25 .25	9,38 11 13 16 2,25 5,73 8,30 42 13,50 90 19 .24 2,79 1,56 1,08 1,25 1,08 1,25 1,08 1,25 1,25 1,25 1,25 1,25 1,25 1,25 1,25	9.10 .12 .14 .14 .2.25 .5.22 .244 .37 .320 .90 .17 .09 .26 .23 .27 .31 .45 .91 .133 .145 .25 .25 .26 .27 .26 .27 .27 .27 .27 .27 .27 .27 .27 .27 .27	6.80 12 15 15 2.25 5.45 2.99 40 70,80 7.2 20 20 22 27 7.50 65 618 1.90 23.50 6.18	8,75 .16 .19 2,00 5,72 3,66 .65 .09 .24 .07 .20 .20 .20 .1,40 1,40 1,38 1,38 1,38 1,38 1,38 1,38 1,38 1,38	8.84 .16 .21 .22 .35 6.92 .10 .38 .29 .09 .32 .32 .35 .135 .14 .35 .46 .32 .32 .32 .33 .43 .43 .43 .43 .43 .43 .43 .43 .43	18 23 22 1.3/ 6.33 8.36 59 15.25 09 24 10 20 38 6.70 1.86 1.38 2.08 2.33 3.33 3.33 3.35 5.76	.27 .26 .442 .588 .781 .59 .07 .25 .11 .22 .32 .6.30 .184 .2.78 .2.78 .2.78 .2.78 .2.78 .2.78 .2.78 .2.78	.33 .29 .129 .6.72 .268 .26 .26 .26 .28 .29 .28 .29 .29 .300 .337 .5000 .538	.24 .24 .1.13 .5.23 .7.34 .85 .95 .24 .24 .25 .5.36 .150 .89 .295 .3.89 .566 .650	26 25 130 53/ 288 46 1/30 04 23 26 494 138 495 282 350 625	21 24 21 1.10 5.52 8.67 42 13.10 04 20 23 5.00 1.41 .90 2.95 3.67 5.25 6.25	.18 .20 .19 .1.10 .5.25 .6.25 .44 .16.00 .04 .18 .5.10 .1.40 .1.40 .1.40 .1.41	25 23 147 5,70 6,05 57 15,50 04 -15 42 28 5,60 1,69 1,15 2,15 4,25 5,250 6,25	28 29 277 8.67 8.81 7/00 .33 .21 283 277 2,98 3,08 4,25 68,17 9,38
7	9. 6 0 1. 5. 6 8. 5. 11. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	13 18 19 10 10 10 10 10 10 10 10 10 10 10 10 10	9.33 .08 .10 .16 2.25 5.58 8.25 5.59 8.25 12.80 .14 .26 .14 .26 1.28 1.28 1.28 1.28 1.28 1.28 1.28 1.28	9.38 11 13 16 2.25 3.30 42 13.50 90 17 09 21 22 24 1.08 1.25 1.08 1.25 1.08 1.25 1.08 1.25 1.35 1	9.10 .12 .14 .14 .2.25 .5.22 .244 .37 .39 .20 .21 .21 .23 .21 .33 .145 .31 .33 .130 .23 .20 .20 .20 .20 .20 .20 .20 .20 .20 .20	6.80 12 15 16 2.25 5.45 2.29 2.00	875 .16 .18 .19 2.00 5.72 .05 .00 .09 .24 .07 .20 .20 .25 4.78 1.40 1.18 1.39 1.39 2.35 6.5 1.40 5.75 1.40 5.75 1.40 5.75 1.40 5.75 1.40 5.75 1.40 5.75 1.40 5.75 1.40 5.75 1.40 1.40 1.40 1.40 1.40 1.40 1.40 1.40	8.84 .16 .22 1.35 6.92 10.38 .19 .20 .09 .19 .32 5.36 1.63 1.32 5.36 5.26 5.26 5.25	.8 .83 .32 .31 6.33 6.36 6.36 .59 .24 .10 .20 .38 6.70 1.86 1.38 2.28 3.43 3.35 3.57 6.70	.27 .26 .442 .588 .781 .59 .07 .25 .11 .22 .32 .6.30 .184 .155 .2.79 .2.82 .583 .00 .00 .00 .00 .00 .00 .00 .00 .00 .0	.33 .29 .129 .6.72 .268 .56 .26 .26 .26 .27 .28 .29 .29 .29 .33 .33 .33 .33 .33 .33 .33 .33 .33 .3	.24 .24 .13 .5.23 .7.34 .48 .11,60 .05 .23 .11 .24 .24 .5.36 .150 .29 .295 .3.20 .5.66 .7.	26 25 130 53/ 288 45 1130 04 23 26 494 138 25 25 25 35 52 50 51 51	21 24 21 1.10 5.52 8.67 42 13.10 04 20 23 5.00 2.95 3.67 5.25 6.25	.18 .20 .18 .110 .5.25 .6.25 .44 .6.00 .04 	25 -23 147 5,70 6,05 -57 -15,50 -04 -15 -42 -28 -5,60 -1,75 -2,16 -2,25	28 272 8.67 8.51 78 17.00 33 21 28 2.37 2.88 3.08 4.25 6.57 9.38
5 7 7 7 7 7 7 7 7	9. 00 1. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	13 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	9.33 .08 .10 .16 2.25 5.58 8.25 41 12.80 .19 .06 .14 .24 .25/ 1.68 1.22 1.56 1.28 1.56 1.28 1.56 1.28 1.56 1.28 1.56 1.28 1.28 1.28 1.28 1.28 1.28 1.28 1.28	9.38 11 13 16 2.25 5.23 8.30 9.0 9.21 2.39 1.36 1.08 1.25 1.25 1.350 1.21 1.25 1.25 1.25 1.350 1.21	3.10 .12 .14 .14 .2.25 .5.22 .244 .37 .320 .90 .17 .09 .26 .23 .273 .145 .91 .131 .131 .131 .131 .131 .131 .131	6.80 .12 .15 .16 2.25 5.45 2.29 .20 .20 .20 .20 .20 .20 .66 .130 2.350 6.12 .08	875 .16 .18 .19 2.00 5.72 3.66 .65 .09 .24 .07 .20 .20 .24 .140 1.18 1.39 2.23 5.76 5.76 5.76	8.84 .16 .22 1.35 6.92 10.38 .29 .09 .29 .08 .19 .35 5.36 1.63 2.14 3.5 8.14 9.21 9.21 9.21 9.21 9.21 9.21 9.21 9.21	./8 ./3 ./3 ./3 ./3 ./3 ./3 ./3 ./3 ./3 ./3	.27 .26 .42 .5.88 .7.81 .59 .15.40 .07 .25 .17 .22 .32 .6.30 .184 .2.78 .2.82 .3.80 .30 .30 .30 .30 .30 .30 .30 .30 .30 .3	.33 29 1.29 6.17 268 .36 .12 00 .26 .14 .28 .27 6.19 1.35 3.30 3.37 3.00 6.38 .11	.24 .24 .13 .5.23 .7.34 .48 .11,60 .05 .23 .11 .24 .24 .5.36 .150 .29 .295 .3.20 .5.66 .7.	26 25 130 53/ 288 46 1/30 04 23 26 494 138 495 282 350 625	21 24 21 1.10 5.52 8.67 42 13.10 04 20 23 5.00 2.95 3.67 5.25 6.25	.18 .20 .18 .110 .5.25 .6.25 .44 .16.000 .04 .18 .1.40	25 -23 147 5,70 6,05 -57 -15,50 -04 -15 -42 -28 -5,60 -1,75 -2,16 -2,25	28 272 8.67 8.51 78 17.00 33 21 28 2.77 2.58 3.00 4.25 69,17 9.38
5 7 7 7 7 7 7 7 7	9. 00 1. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	13 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	9.33 .08 .10 .16 2.25 5.58 8.25 41 12.80 .19 .06 .14 .24 .25/ 1.68 1.22 1.56 1.28 1.56 1.28 1.56 1.28 1.56 1.28 1.56 1.28 1.28 1.28 1.28 1.28 1.28 1.28 1.28	9.38 11 13 16 2.25 5.23 8.30 9.0 9.21 2.39 1.36 1.08 1.25 1.25 1.350 1.21 1.25 1.25 1.25 1.350 1.21	3.10 .12 .14 .14 .2.25 .5.22 .244 .37 .320 .90 .17 .09 .26 .23 .273 .145 .91 .131 .131 .131 .131 .131 .131 .131	6.80 .12 .15 .16 2.25 5.45 2.29 .20 .20 .20 .20 .20 .20 .66 .130 2.350 6.12 .08	875 .16 .18 .19 2.00 5.72 3.66 .65 .09 .24 .07 .20 .20 .24 .140 1.18 1.39 2.23 5.76 5.76 5.76	8.84 .16 .22 1.35 6.92 10.38 .29 .09 .29 .08 .19 .35 5.36 1.63 2.14 3.5 8.14 9.21 9.21 9.21 9.21 9.21 9.21 9.21 9.21	./8 ./3 ./3 ./3 ./3 ./3 ./3 ./3 ./3 ./3 ./3	.27 .26 .42 .5.88 .7.81 .59 .15.40 .07 .25 .17 .22 .32 .6.30 .184 .2.78 .2.82 .3.80 .30 .30 .30 .30 .30 .30 .30 .30 .30 .3	.33 29 1.29 6.17 268 .36 .12 00 .26 .14 .28 .27 6.19 1.35 3.30 3.37 3.00 6.38 .11	.24 .24 .1.13 .5.23 .7.34 .48 .11.50 .05 .23 .11 .24 .22 .5.36 .1.50 .24 .29 .3.29 .5.36	26 25 130 53/ 29 45 1130 04 23 26 494 138 295 202 3250 625 10	21 24 21 1.10 5.52 8.67 42 13.10 04 20 20 20 20 3.67 5250 6.25 10	.18 .20 .19 .10 .5.25 .6.25 .44 .16.00 .09 .24 .18 .5.10 .1.40 .1.	25 33 147 5 10 6.05 5 7 15,50 04 	28 272 8.67 8.51 78 17.00 33 21 28 2.77 2.58 3.00 4.25 6.9.17 9.38
5 5 7 7 7 7 8	9. 0 12. 5. 8. 8. 5. 11. 12. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	13 18 19 19 19 19 19 19 19 19 19 19 19 19 19	9.33 .08 .10 .10 .25 5.58 .82 .12 .80 .17 .08 .25 .16 .16 .16 .16 .16 .16 .16 .16 .16 .16	9.38 11 13 16 2.25 5.23 8.30 9.0 9.21 2.79 1.36 1.08 1.25 1.25 1.26 1.28 2.79 2.29 1.36 1.25 1	9.10 .12 .14 .14 .14 .15 .12 .24 .37 .32 .29 .29 .29 .21 .33 .29 .33 .29 .33 .29 .33 .29 .33 .29 .33 .29 .29 .29 .29 .29 .29 .29 .29 .29 .29	8.80 12 15 16 2.25 2.40 10.80 2.2 2.0 0.0 2.2 2.77 2.50 6.66 1.38 1.90 2.35 6.12 6.12 4.0	875 16 18 18 200 5.72 5.72 65 10.60 20 20 20 20 1.80 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.3	8.84 .16 .21 .23 .632 .70 .09 .20 .09 .20 .09 .32 .5.36 .135 .135 .135 .135 .135 .236 .214 .328 .328 .336 .336 .336 .336 .336 .336 .336 .33	18 23 22 7.31 8.36 5.9 26 18.25 20 20 1.38 2.08 2.33 3.33 5.76 1.86 2.33 3.33 5.76 1.76 1.76 1.76 1.76 1.76 1.76 1.76 1	.27 .26 .588 .781 .590 .25 .17 .22 .32 6.30 1.84 1.55 2.79 2.82 2.82 2.82 2.82 2.82 2.82 2.82 2.8	.33 .29 1.29 6.17 .268 .36 .1200 .26 .14 .28 .27 .6.19 .3300 .337 .3000 .38 .11 .44 .42	.24 24 1.13 5.23 7.34 48 11.50 .05 .23 .11 .24 .25 .36 1.50 2.35 3.29 5.36 6.50 .10 .10 .10 .10 .10 .10 .10 .10 .10 .1	.26 .25 /.30 5.3/ 2.98 .96 .04 .09 .23 .26 .494 /.38 .95 .2.92 .3.50 .52.50 .52.50 .20 .41	21 .54 .21 .5.52 .8.67 .42 .08 .20 .23 .500 .41 .90 .2 .95 .3.67 .625 .10	.18 .20 .19 .10 .5.25 .6.25 .44 .16.00 .09 .24 .18 .5.10 .1.40 .1.	25 23 147 5 10 6.08 5 7 25,50 42 28 5,50 1,69 2,75 4,25 5,25 6,25 0,9 1,8	28 272 8.67 8.51 78 17.00 33 21 28 2.37 2.88 3.08 4.25 6.57 9.38
5 5 7 7 7 7 7 7 7 7	9. 1. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	13 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	9.33 .08 .10 .16 .2.25 5.58 .47 .12.80 .17 .08 .14 .24 .24 .24 .25 .15 .15 .15 .15 .15 .15 .15 .15 .15 .1	9.38 11 13 16 2.25 5.73 8.30 17 .08 .21 .25 .25 .279 .25 .25 .279 .25 .28 .279 .28 .29 .29 .29 .29 .29 .29 .29 .29	9.10 .12 .14 .14 .2.55 .2.44 .3.7 .13.20 .8.0 .17 .09 .26 .23 .273 .145 .91 .133 .1.90 .23,50 .6.12 .07 .05 .07 .07 .09 .09 .09 .09 .09 .09 .09 .09 .09 .09	6.80 12 18 18 2.25 2.45 2.40 2.60 2.60 2.60 2.60 2.60 2.60 2.77 2.50 6.66 1.38 1.30 6.12 6.60 6.12 6.60 6.12 6.60 6.12	875 16 18 19 200 5.72 3.66 65 10.60 .09 .24 .07 .20 .25 .43 1.40 1.38 1.39 1.39 2.35 65 1.40 5.72 2.35 65 1.40 5.72 2.35 65 1.40 5.72 2.50 65 2.65 1.40 5.72 2.65 1.40 5.72 2.65 1.40 5.72 2.65 1.40 5.72 2.65 1.40 5.72 2.65 1.40 5.72 2.65 1.40 5.72 2.65 1.40 5.72 2.65 1.40 5.72 2.65 1.40 5.72 2.65 1.40 5.72 2.65 1.65 1.65 1.65 1.65 1.65 1.65 1.65 1	8.84 .16 .21 .22 .135 .09 .20 .09 .20 .09 .20 .08 .135 .135 .135 .135 .135 .135 .135 .135	18 23 22 1.31 6.33 8.36 5.9 26 10 20 2.33 43.33 5.76 12 13 13 13 13 13 13 13 13 13 13 13 13 13	.27 .26 .142 .588 .781 .540 .25 .17 .22 .32 .6.30 .184 .155 .2.79 .2.82 .500 .583 .11 .14 .39	.53 .29 .129 .129 .56 .56 .20 .06 .26 .14 .28 .29 .29 .337 .500 .5337 .5000 .5337 .5000 .5337 .5000 .5337 .5000 .5337 .5000 .5337 .5000 .5	.24 .24 .1.13 .5.23 .23 .48 .05 .23 .24 .22 .5.36 .1.50 .9.9 .2.95 .3.29 .5.65 .6.50 .10 .40 .06	.26 .25 /.30 /.30 /.38 //.30 .04 .09 .23 .26 .26 .29 .350 .52,50 .25 .20 .20 .20 .20 .20 .20 .20 .20 .20 .20	21 24 21 25,52 8.87 42 20 20 23 5,000 1,41 90 2,95 3,67 52,56 16 18 3,67	.18 .20 .19 1.40 .5.25 .44 /6.00 .04 .18 .24 .18 .14 .140 .140 .140 .140 .140 .140 .140	25 23 147 570 608 37 15 50 04 18 42 28 5 60 1.69 1.75 2.78 4.25 6.25 6.25	28 29 277 8.57 8.57 76 77,00 33 21 20 20 20 20 20 20 20 20 20 30 42 50 42 50 42 50 42 50 42 50 42 50 42 50 42 50 42 50 42 50 50 50 50 50 50 50 50 50 50 50 50 50
5 5 7 7 7 7 7 7 7 7	9 0 0 1 2 1 5 8 8 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	13 18 18 19 13 13 13 13 13 13 14 14 14 14 14 14 14 14 14 14 14 14 14	9.33 .08 .10 .16 .12 .22 .5.58 .8.25 .47 .12.80 .9.0 .14 .24 .28 .188 .285 .128 .128 .128 .128 .128 .128 .128 .128	9.38 11 13 16 2.25 5.23 8.30 90 17 08 21 2.29 2.13 5.08 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25	9.70 12 14 14 14 18 18 18 18 18 18 18 18 18 18	8.80 12 18 18 18 2.25 5.45 7.90 40 10.80 7.2 20 20 20 20 20 20 20 20 20 2	8,75 18 18 18 2,00	8.84 .16 .21 .35 .6.92 .10.38 .71 .12.70 .09 .29 .19 .32 .5.36 .1.43 .1.	18 23 22 1.3/ 6.33 8.36 5.59 15.75 09 20 20 1.86 1.38 2.08 2.33 3.576 12 15 15 15 16 16 16 16 16 16 16 16 16 16 16 16 16	.27 .26 .142 .588 .781 .59 .55 .07 .25 .11 .22 .32 .6.30 .28 .279 .282 .50,000 .53 .11 .14 .39 .55 .55 .55 .55 .57 .57 .57 .57 .57 .57	.33 .69 .6,17 .26 .56 .12,00 .06 .26 .14 .28 .27 .6,19 .1,29 .3,37 .50,00 .6,38 .1,29 .3,37 .50,00 .6,38 .1,29 .2,20 .3,37 .5,20 .6,19 .5,20 .6,19 .7,20 .7,	.24 .24 .1.3 .2.23 .2.3 .2.4 .2.2 .2.2 .2.2 .2.3 .2.4 .2.2 .2.3 .3.20 .2.9 .5.0 .6.50 .10 .10 .10 .10 .10 .10 .10 .10 .10 .1	26 25 130 53/ 286 48 1030 23 26 494 138 252 350 5250 625 10 20 41 41 61 41 41 41 41 41 41 41 41 41 41 41 41 41	21 24 21 25,52 8.87 42 20 20 23 5,000 1,41 90 2,95 3,67 52,56 16 18 3,67	.18 .20 .19 .10 .5.25 .6.25 .44 .16.00 .09 .24 .18 .5.10 .1.40 .1.	25 23 147 5 10 6.08 5 7 25,50 42 28 5,50 1,69 2,75 4,25 5,25 6,25 0,9 1,8	28 272 8.67 8.51 78 17.00 33 21 28 2.77 2.58 3.00 4.25 6.9.17 9.38
5 5 7 7 7 7 7	9 0 0 1 2 1 5 8 8 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	13 18 18 19 13 13 13 13 13 13 14 14 14 14 14 14 14 14 14 14 14 14 14	9.33 .08 .10 .16 .12 .22 .5.58 .8.25 .47 .12.80 .9.0 .14 .24 .28 .188 .285 .128 .128 .128 .128 .128 .128 .128 .128	9.38 11 13 16 2.25 5.23 8.30 90 17 08 21 2.29 2.13 5.08 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25	9.70 12 14 14 14 18 18 18 18 18 18 18 18 18 18	8.80 12 18 18 18 2.25 5.45 7.90 40 10.80 7.2 20 20 20 20 20 20 20 20 20 2	8,75 18 18 18 2,00	8.84 .16 .21 .35 .6.92 .10.38 .71 .12.70 .09 .29 .19 .32 .5.36 .1.43 .1.35 .1.	18 23 22 1.3/ 6.33 8.36 5.59 15.75 09 20 20 1.86 1.38 2.08 2.33 3.576 12 15 15 15 16 16 16 16 16 16 16 16 16 16 16 16 16	.27 .26 .142 .588 .781 .59 .55 .07 .25 .11 .22 .32 .6.30 .28 .279 .282 .50,000 .53 .11 .14 .39 .55 .55 .55 .55 .57 .57 .57 .57 .57 .57	.33 .69 .6,17 .26 .56 .12,00 .06 .26 .14 .28 .27 .6,19 .1,29 .3,37 .50,00 .6,38 .1,29 .3,37 .50,00 .6,38 .1,29 .2,20 .3,37 .5,20 .6,19 .5,20 .6,19 .7,20 .7,	.24 .24 .1.3 .2.23 .2.3 .2.4 .2.2 .2.2 .2.2 .2.3 .2.4 .2.2 .2.3 .3.20 .2.9 .5.0 .6.50 .10 .10 .10 .10 .10 .10 .10 .10 .10 .1	26 25 130 53/ 286 48 1030 23 26 494 138 252 350 5250 625 10 20 41 41 61 41 41 41 41 41 41 41 41 41 41 41 41 41	21 24 21 1.50 5.52 13.10 04 20 20 20 20 3.67 5.50 1.41 90 2.95 3.67 5.50 1.41 90 90 90 90 90 90 90 90 90 90	.18 .20 .19 .10 .5.25 .6.25 .44 .16.00 .09 .24 .18 .10 .10 .10 .10 .25 .52 .50 .62 .50 .10 .10 .10 .10 .10 .10 .10 .10 .10 .1	25 .63 .47 .57 .605 .605 .67 .65 .60 .42 .42 .28 .425 .625 .03 .29 .29 .29 .29 .29 .29 .29 .29 .29 .29	.28 .29 .217 8.67 8.67 17.00 .33 .21 .39 .21 .28 .39 .39 .39 .39 .39 .39 .39 .39 .39 .39
5 5 7 7 7 7 7 7	9. 0 0 1 2 1 5 2 8 8 8 11 1 2 2 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1	13 8 8 10 17 9 60 9 8 1 12 12 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8	9.33 08 10 16 2.25 5.58 8.25 47 12.80 19 .06 .14 .24 .15 .16 .25 .16 .25 .16 .26 .18 .28 .28 .28 .28 .28 .28 .28 .2	9.38 11 13 18 2.25 2.35 8.30 90 90 90 90 125 125 125 125 125 125 125 125	9.10 12 14 14 14 14 18 18 18 18 18 18 18 18 18 18	8.80 12 18 18 18 2.25 5.45 7.90 40 10.80 7.2 20 20 20 20 20 20 20 20 20 2	8,75 .18 .18 .200 .5.72 .9.66 .63 .10,80 .09 .24 .20 .25 .4.78 .140 .1.18 .1.32 .2.35 .10 .1.2 .2.35 .10 .1.2 .2.35 .1.32 .2.35 .3.3	8.84 .16 .21 .23 .63 .27 .1270 .03 .29 .19 .32 .536 .14 .32 .33 .13 .53 .13 .53 .13 .53 .13 .53 .53 .53 .53 .53 .53 .53 .53 .53 .5	18 23 22 6.33 8.36 59 1525 09 20 20 38 6.10 1.86 1.38 2.08 2.33 3.43,33 5.76 12 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	.27 .26 .142 .588 .781 .59 .55 .07 .25 .11 .22 .32 6.30 .282 .282 .30,00 .583 .11 .4 .39 .06 .07	.33 .69 .129 .6,17 .266 .26 .26 .27 .28 .27 .28 .27 .28 .27 .29 .33 .33 .32 .33 .32 .33 .32 .33 .32 .33 .32 .33 .33	.24 .24 .1.3 .2.3 .2.3 .2.4 .2.2 .2.4 .2.2 .2.3 .3.29 .2.95 .3.29 .5.66 .10 .06 .06 .06 .06 .06 .06 .06 .06 .06 .0	26 25 130 53/ 28 45 1/30 04 23 23 26 494 1/38 95 2.82 3.80 3.82 3.82 3.82 3.82 3.82 4.84 1.36 6.25 10 20 4.84 10 4.86 10 10 10 10 10 10 10 10 10 10 10 10 10	21 24 21 1.10 0.8 23 3.00 23 5.00 1.41 90 2.35 5.00 1.41 90 52.55 6.25 10 18 38 6.25 10 10 10 10 10 10 10 10 10 10 10 10 10	.18 .20 .14 .140 .08 .6.25 .44 .16.00 .24 .18 .5.10 .1.40 .1	25 .23 .147 .5,70 .605 .5,500 .04 .15 .28 .5,600 .1,75 .2,25 .09 .1,25 .09 .1,25 .1,	28 277 8.67 8.51 7200 .33 .21 28 29 28 3.08 425 65 11 3.7 .31 .31 .31 .31 .31 .31 .31 .31 .31 .31
5 5 7 7 3 7 3 7	9 0 0 1 2 5 2 8 5 1 1 1 1 2 2 1 6 1 3 6 1 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	13 13 13 13 13 13 13 13 13 13	9.33 .08 .10 .16 .2.25 .5.38 .8.25 .47 .12.80 .9.0 .14 .24 .25 .25 .14 .25 .25 .15 .25 .15 .25 .25 .25 .25 .25 .25 .25 .25 .25 .2	9.38 11 13 18 2.25 2.35 8.30 90 90 24 25 2.79 1.56 1.08 1.25 1.	9.70 12 14 14 12 15 16 17 18 20 20 21 21 21 23 23 23 23 23 23 24 24 25 26 27 29 29 29 29 29 29 29 29 29 29	8:80 12 15 18 2:25 5:45 2:40 10:80 2:2 2:7 2:0 2:47 2:	8,75 16 18 2,00 5,72 9,66 65 10,90 20 20 2,72 1,40 1,30 1,30 1,30 1,30 1,20 2,35 1,40 1,20 2,35 1,40 1,4	8.84 16 21 22 6.92 10.38 71 12.70 09 09 09 32 1.35 1.63 1.435 1.63 1.435 1.63 2.74 3.283	18 23 22 6.33 8.36 5.95 10 20 38 6.10 20 38 2.13 2.23 3.33 5.26 1.36 1.36 1.37 1.38 2.33 2.33 3.33 5.26 1.57 1.57 1.57 1.57 1.57 1.57 1.57 1.57	.27 .26 .242 .59 .15,40 .07 .25 .10 .22 .32 .6.30 .184 .155 .2.79 .280 .00 .01 .01 .01 .01 .01 .01 .01 .01 .0	.33 .89 1.79 6.17 .56 .26 .26 .26 .27 6.19 3.30 6.38 .11 .42 .06 .33 .11 .42 .06 .14 .42	.24 .28 .1.53 .7.34 .48 .11.60 .05 .23 .11 .24 .22 .5.36 .150 .9.9 .2.35 .3.56 .10 .40 .06 .40 .06 .40 .06 .40 .06 .40 .40 .40 .40 .40 .40 .40 .40 .40 .40	26 25 130 288 28 42 1130 09 28 28 29 28 29 25 20 21 20 21 20 21 20 21 20 21 20 21 20 21 20 21 20 21 20 21 20 21 20 21 20 21 20 21 21 21 21 21 21 21 21 21 21 21 21 21	21 34 21 1.55 8.67 42 13.10 04 22 .08 23 5.00 1.41 .90 2.35 6.25 6.25 .10 .18 .36 .07 .08 .09 .09 .09 .09 .09 .09 .09 .09 .09 .09	.18 .20 .10 .10 .525 .625 .44 .16,000 .08 .34 .5,10 .140 .140 .140 .140 .32 .625 .03 .17 .32 .06 .09	25 .63 .147 .570 .605 .615 .625 .60 .142 .28 .560 .169 .25 .625 .09 .10 .29 .11 .13 .29	.29 .217 8.67 8.51 17.00 .33 .21 .20 .20 .21 .23 .23 .23 .24 .23 .24 .25 .25 .27 .28 .30 .42 .25 .27 .28 .27 .28 .27 .28 .27 .29 .29 .20 .20 .20 .20 .20 .20 .20 .20 .20 .20
5 5 7 7 7 7 7 7	9 0 0 1 2 5 2 8 5 1 1 1 1 2 2 1 6 1 3 6 1 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	13 13 13 13 13 13 13 13 13 13	9.33 .08 .10 .16 .2.25 .5.38 .8.25 .47 .12.80 .9.0 .14 .24 .25 .25 .14 .25 .25 .15 .25 .15 .25 .25 .25 .25 .25 .25 .25 .25 .25 .2	9.38 11 13 18 2.25 2.35 8.30 90 90 24 25 2.79 1.56 1.08 1.25 1.	9.70 12 14 14 12 15 16 17 18 20 20 21 21 21 23 23 23 23 23 23 24 24 25 26 27 29 29 29 29 29 29 29 29 29 29	8:80 12 15 18 2:25 5:45 2:40 10:80 2:2 2:7 2:0 2:47 2:	8,75 16 18 2,00 5,72 9,66 65 10,90 20 20 20 21,40 1,30 1,30 1,30 1,20 2,35 1,40 1,20 2,35 1,40	8.84 16 21 22 6.92 10.38 71 12.70 09 09 09 32 1.35 1.63 1.435 1.63 1.435 1.63 2.74 3.283	18 23 22 6.33 8.36 5.95 10 20 38 6.10 20 38 2.13 2.23 3.33 5.26 1.36 1.36 1.37 1.38 2.33 2.33 3.33 5.26 1.57 1.57 1.57 1.57 1.57 1.57 1.57 1.57	.27 .26 .242 .59 .15,40 .07 .25 .10 .22 .32 .6.30 .184 .155 .2.79 .280 .00 .01 .01 .01 .01 .01 .01 .01 .01 .0	.33 .89 1.79 6.17 .56 .26 .26 .26 .27 6.19 3.30 6.38 .11 .42 .06 .33 .11 .42 .06 .14 .42	.24 .28 .1.53 .7.34 .48 .11.50 .05 .23 .11 .24 .22 .5.36 .150 .9.9 .2.35 .3.56 .10 .40 .06 .40 .06 .40 .06 .40 .06 .40 .40 .40 .40 .40 .40 .40 .40 .40 .40	26 25 130 288 28 42 1130 09 28 28 29 28 29 25 20 21 20 21 20 21 20 21 20 21 20 21 20 21 20 21 20 21 20 21 20 21 20 21 20 21 20 21 21 21 21 21 21 21 21 21 21 21 21 21	21 34 21 1.55 8.67 42 13.10 04 22 .08 23 5.00 1.41 .90 2.35 6.25 6.25 .10 .18 .36 .07 .08 .09 .09 .09 .09 .09 .09 .09 .09 .09 .09	.18 .20 .10 .10 .525 .625 .44 .16,000 .08 .34 .5,10 .140 .140 .140 .140 .32 .625 .03 .17 .32 .06 .09	25 .63 .147 .570 .605 .615 .625 .60 .142 .28 .560 .169 .25 .625 .09 .10 .29 .11 .13 .29	.29 .217 8.67 8.51 17.00 .33 .21 .20 .20 .21 .23 .23 .23 .24 .23 .24 .25 .25 .27 .28 .30 .42 .25 .27 .28 .27 .28 .27 .28 .27 .29 .29 .20 .20 .20 .20 .20 .20 .20 .20 .20 .20
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5 5 7 7 7 7 7 7 7	9 0 0 1 2 5 8 8 5 1 1 1 1 2 2 1 C 1 2 8 6 1 0 1 3 5 5 3	13	9.33 .08 .10 .10 .225 .5.58 .8.25 .47 .12.80 .19 .08 .2.57 .19 .2.67 .158 .2.57 .158 .2.57 .158 .2.58 .158 .2.59 .158 .2.59 .158 .2.59 .158 .2.59 .178 .2.69 .178 .2.69 .178 .2.69 .178 .2.69 .178 .2.69 .178 .2.69 .178 .2.69 .178 .188 .188 .188 .188 .188 .188 .188	9.38 11 18 2.25 3.73 8.30 19 .08 21 .08 2.79 1.56 1.08 1.25 6.12 .05 .09 .3.20 .09 .3.30 .09 .09 .09 .09 .09 .09 .09 .0	9.10 12 14 2.25 5.22 2.44 3.20 9.0 17 09 26 2.23 1.45 9.1 1.50 6.12 07 12 44 05 09 36 37 46 46 47 47 48 48 48 48 48 48 48 48 48 48	8.80 12 18 2.25 5.45 5.49 40 00 22 20 65 68 130 68 140 68 140 68 140 68 140 68 140 68 140 140 140 140 140 140 140 140	875 16 18 200 5.72 3.66 65 60 24 .07 .20 4.20 1.40 1.18 1.32 2.350 5.75 10 61 62 63 63 64 65 65 65 65 65 65 65 65 65 65 65 65 65	8.84 .16 .21 .23 .23 .23 .20 .29 .29 .29 .32 .32 .33 .35 .35 .35 .35 .35 .35 .35	18 23 42 1.31 6.33 8.36 5.9 24 10 20 1.86 1.38 2.93 3.5 76 12 3.5 76 14 43 86 6.10 14 86 6.10 14 86	.27 .26 .240 .540 .59 .53 .07 .25 .32 .630 .07 .25 .32 .630 .07 .25 .279 .282 .300 .07 .25 .300 .07 .25 .300 .07 .25 .300 .07 .25 .300 .07 .07 .07 .07 .07 .07 .07 .07 .07	.33 .89 .1.79 .6.12 .56 .26 .26 .26 .28 .29 .28 .29 .28 .29 .33 .30 .33 .30 .33 .30 .33 .30 .33 .42 .42 .42 .42 .42 .42 .42 .42 .42 .42	.24 .28 .1.50 .05 .23 .150 .05 .24 .24 .24 .25 .36 .150 .29 .53 .66 .10 .06 .12 .40 .06 .12 .40 .06 .12 .40 .06 .12 .40 .06 .10 .10 .10 .10 .10 .10 .10 .10 .10 .10	.26 .25 .25 .25 .26 .26 .26 .23 .26 .23 .26 .29 .29 .20 .20 .20 .20 .20 .20 .20 .20 .20 .20	21 24 21 25 35 35 36 20 23 35 36 36 36 36 36 36 36 36 36 36 36 36 36	.18 20 .19 .19 .5.25 .6.25 .44 .16.00 .09 .24 .5.10 .140 .1.	-55 -63 -53 -57 -57 -605 -57 -15,50 -15 -42 -28 -5,50 -1,75 -5,25 -62 -5,25 -62 -62 -62 -62 -62 -62 -62 -62 -62 -62	.29 .27 .65 .62 .63 .74 .75 .75 .38 .27 .298 .300 .425 .37 .298 .300 .37 .27 .37 .37 .37 .37 .425 .425 .425 .425 .425 .425 .425 .425
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were thought to deserve at least passing discussion. Those readers familiar with the subject of weighting will understand that errors in weights are usually of comparatively little importance, and that it is helpful to subject ordinary arithmetical averages to weighting, even though one is forced to depend largely upon inference and upon his imagination for the actual weights that are used.*

It should be noted, moreover, in this connection that the simple index number itself contains a natural system of weighting, due to the inclusion of a larger number of varieties or grades in the case of the important articles than in the case of the unimportant articles. Thus, the food group contains 36 out of the 74 commodities, or 48.6 per cent. This natural system of weighting in the simple index number, combined with the uncertainty of the weights employed in the weighted index number, make it probable that the simple index number represents the price movement between 1825 and 1863 just as correctly, if not more correctly, than the weighted index number.

The period here under discussion was marked by rapid economic changes—perhaps the most rapid that the United States has ever seen—and all of these exercised an influence, direct or indirect, on the movement of prices. The simple index number as projected in Graph I shows a steady fall in the price level terminating in the year 1848, although this fall is interrupted by a striking period of inflation lasting from 1834 to 1836, during which the curve ascends very abruptly from an index of 100 to one of 123.

Then occurs the great fall in prices incident to the panic of 1837. Over the seven years 1836 to 1843 the drop in the price level is 34 per cent. These years of leanness are succeeded by gradual recovery until 1847. There within a year the index drops 14.5 points, touching 87.7 in 1848, the lowest point reached during the entire period. After 1848 a steady rise in values is seen, till in 1857 the maximum crest of this wave records a level of 120.3. This is, next to the index of 1836, the highest point attained in the period, if the unnatural upward distortion of the curve after 1860 is dis-

^{*} See Bowley, Elements of Statistics, p. 205.

regarded. The year 1858 shows a tremendous fall in prices, resulting in an index number of only 99.5 in 1858 as contrasted with 120.3 in 1857, and it is not until 1862 that the price curve under the influence of war conditions, returns to the general level which characterized the years preceding 1858. The reasons for the sharp and abnormal rise after 1860 are too well known to call for comment.

Certain other characteristics of the price movement before 1860, however, deserve more extended discussion.

The first gradual sinking of prices from 1825 to 1830 is due to several causes. One of these was undoubtedly the feeling of insecurity which prevailed in eastern markets, where conservative business men were distrustful of the erratic administration of Jackson.* But that this was not the sole reason is evidenced by the continued fall of the curve. Other and deeper forces were at work. The need of currency which the West experienced, the Tariff of Abominations,† and the better than average crops in the opening years of the period ‡ must bear the balance of responsibility for this fall in prices. This early tendency for the price curve to fall is in 1830–31 arrested by a rise of 4 per cent. But this short rise is compensated by an accelerated fall of 13 per cent. from 1832 to 1834.

The ascent of 23 per cent. from 1834 to 1836 sets off in strong contrast the slow fall just noted. High prices prevailed thereafter until well into the year 1840. Among the causes for this phenomenon an important place must be given to the abolition of the Second National Bank and the substitution of "wild cat" for conservative banking. The era of speculation which followed the apportionment among the several states of the proceeds of the land sales was largely, as is well known, a consequence of the issuance of paper money by the state banks. Prices went soaring until they reached a maximum in 1836. In that year the prices in New York of prime beef went as high as \$8.75 per barrel. Mess pork sold at \$30.00 per barrel, ham at 17 cents a pound, sugars at 12 to

^{*} McMaster, History of the United States, Vol. V., pp. 121-123, 227-267; J. L. Bishop, American Manufactures, Vol. II., p. 342, ff.

[†] Bolles, Financial History of the United States, p. 375 ff.

[‡] Benton, Thirty Years' View.

		TAB.	LE I	<i>II:</i> 2	SIM	PLE	ΙΝΙ	DEX	Ν̈́	MB.	ER °	s Yz	EAR	LY.	AVE	ERA	GE A	PRI	(ES	-1	VE'I	w Y	ORK	: M	ARI	ŒT	-7
		1025	1826	1422	1,92,0	1829	10 20	10.71	1022	1022	10 20	1835	1026	7027	1020			100		10/12	1044	10/15	IPIE	1917	1040	1849	1950
(/ Seef Prime		140	//3	131	/56	172	143				-					===		-	==:								
a Mess			177	124		128	174	134	135		142	185	172			264		/36			38	128	/28	221		207 226	
3 Park Prime		85	65	77	82	9/	80	164	183 92	181	178 81	214	211	267		286	25/	124	140		109		146 80	74	97	20	175 75
4 " Mess		28	64	23	25	20	74	25	28	94 8/	77		123	/30 //8	723		105	110	47	52 55	68	6/	60	8/	62	60	70 59
5 Smaked Ham		66	68	26	68	68	7/	73	69	67	64	70		90	//9 87		83	6/	57	20	52	70	00	0/	O.	60	3
& Lard		79	23	62	64	55	22	8/	82		7/	1	136	93	100		9/	67	55	55	5/	65	61	.8/	65	64	56
7 Fesh Dry God		65	59	28	76	68	6/	74	76	21	62	23	88	90	92	100	66		59	64	70	6.9	24	89	22	66	68
8 & Mackers	#/	J2	37	32	32	33	35	39	38		37	43		59	68	81	77	75		1	65	25	64	62		64	65
9 Butter West'n		95	93	102	.95	84	63	S/	9/	95	85	105	107	109	121	115	106	22	ı Ž	52	6/	8/	70	97	97	9/	9/
10 Cheese, America	$a_n \mid \mathcal{I} \mid$	25	78	7.5	3.9	39	70	39	59	68	59	25	89	9/	28	9/	72	67	68		48	69	20	7/	20	62	63
(II Wheat Geneses		6/	63	66	8/	63	22	80	84		22	94		119	128	85	1	80	76		65	70	12	92	28	87	85
12 Whent Flour, S.		100	94	100	109	125	97	111	112	108	97	110	-	/28		102	103		117	96	92	96	99	-	1/2	108	107
13 Rye, Northern		65	85	82	65	80	78	95	101	97	80	110	126	/35	/26	119	72	77	79	25	82	84	80	120		73	78
14 Rye Flour, Fine		29	100	.96	8/	103	95	108	121	107	119	120	158	182		132	86	9/	96	87	88	9/	98	/3/	107	83	97
15 Corn, Northern		75	103	82	82	76	76	95	93	99	89	122	122	139	1/5	1/6	22	25	87	74	67	23	92	119	87	84	85
16 Corn Meal, Non	thern	28	107	30	78	77	73	101	36	107	97	114	132	137	108	1/3	90	87	83	12	73	76	104	117	80	82	83
17 Oats, Northern		77	114	97	72	94	24	90	112	98	86	1/2	126	126	95	114	82	105	1/2	:to	77	91	94	118	100	92	104
18 Rice		72	73	80	77	73	65	75	82	70	7/	85	90	98	107	107	82	84	69	65	24	93	89	101	77	69	78
(10 rous		137	127	101	51	57	99	93	739	216	116	116	115	58	58	/2/	303	187	97	76	67	115	150	75	38	68	107
(20 Copyee, Brazil		122	107	100	92	86	29	62	8.9	8.9	79	89	89	79	74	29	87	74	59	53	50	52	52	52	44	2/	79
21 + Java		123	105	100	84	9/	91	77	80	80	75	75	84	84	75	75	78	73	68	5.0	63	5/	53	50	4.1	38	78
22 Tea, Young Hyso	n	165	153	161	156	154	147	164	163	125	102	105	106	103	97	176	1/3	125	107	100	101	100	97	9/	85	83	66
28 Souchong		204	191	2/8	205	200	194	207	163	117	.97	90	104	102	90	30	149	192	160	140	122	1/19	127	102	82	//3	132
24 " Imperial		409	379	387	354	360	352	372	346	278	243	247	250	247	235	235	234		200	184	191	203	193	171	150	757	177
25 Molasses, New	Orteans	73	7/	75	70	64	63	6/	64	68	62	67	92	79	78	24	56	54	44	49	63	60	62	72	53	55	58
26 " Seeger	r House	150	752	161	137	137	121	100	112	111	96	107	140	132	123	114	89	82	64	7/	96	89	87	96	79	86	86
27 " Nava	2200	137	//8	132	127	110	103	108	1/4	114	103	117	157	151	135	127	96	85	69	8.3	108	107	82	96	82	87	92
28 Sugar, New Orl	sans		//8	1/12	///	101	114	85	92	96	94	102	127	97	98	100	85	89	57	7.9	88	85	92	96	58	6.9	76
29 · Muscom		129	114	A38	132	-	1/3	86	7/	100	100	110	129	86	107	107	89	86	21	90	86	86	104	86	62	70	77
30 " Loaf		182	183				183			162	161			758	759	/58	127	122	00	11C	113	117	1/13	103	82	86	90
31 Salt, Liverpool			254				2/9	211		202	173		2/0	218		194	188	773	184	160	154	151	148	149	L-	142	151
32 + Tork's 136	ind		268	300	263		247	268	258	231	203	189	200	202		200	179			147		145	1222		/32	126	124
33 Pepper		258		234	22.9		183			143		101			99	129	97	92	100		/37		/36		71	86	96
34 Raisins Musca	ifet		/30				99	99	119	85	62	108	93	45	66	53	6/	74	.4	68	90	98	82	69		79	102
35 Nutrieg			364		310				340	=	204	328				240	202		1.97	202			-			2/8	250
36 Olive Oil		25	65	72	63	63	76	74	77	02	74	93	89	76	88	81	86	104	70	67	73	72	70	92	84	74	24

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	/ Seef Trime	140	1/4/	151	J56	172	143	134	135	138	142	185	772	201	267	264	2/2	/36	88	7/8	38	128	/28	/98	141	202	140
	d a Mess	120	177	174	176	128	174	164	/83	181	128	214	211	267	284	286	251	124	146	138	109	160	146	221	191	226	175
8 .	3 Park Prime	85	65	71	82	91	80	97	92	.94	87	104	143	130	723	129	105	110	76	52	68	61	80	74	97	20	76
8 8	4 " Mess	78	64	23	75	20	70	25	28	8/	22	9.2	12.0	1/8	7/0	200		61	42	55	62	70	60		62	60	5.9
	5 Smaked Ham	66	68	76	58	68	7/	72	-		64	70		1	87	///	84										Ĭ
3 8 7	& Lard		-	/12	64	55		8/								04	07									60	
3.5	7 Fish Dry God		59	70		-	1	07	Oz'	82		84		93	100	109	===	82	"	30	.5/	60		10/	00	0.4	00
36				78	-	68		17	76	77	62	23			92	100	66	67	59	64	70	6.9	74	89	77	00	60
	8 's Mackers (#/	32		32			35	39	34	40			<i>5</i> 8	59	68	8/	77	75	- 34	55	65	25	64	62	δV	64	65
	9 Butter, West'n Dairy	95	93	102	95	84	63	.87	9/	95	85	105	107	109	121	1/5	106	22	7/	52	6/	8/	78	92	97	9/	9/
	(a Cheese, American	75	78	7.5	3.9	59	70	39	59	68	69	25	89	9/	78	9/	72	67	68	54	48	69	70	71	70	62	63
	(II Wheat Genesee	6/	63	66	8/	63	72	80	84	80	72	94	7/9	119	128	85	7/	80	76	66	65	70	22	92	28	87	65
- 23	12 Whent Flour, Superior	100	94	100	109	125	97	111	1/2	108	97	110	146	178	155	142	103	105	117	96	92	96	99	130	1/2	108	107
12 2	13 Ripe, Northern	65	35	82	65	80	28	95	101	97	80	110	126	/35	126	119	72	97	79	25	82	84	30	120	89	23	78
	14 Rue Flour, Pine	29	100	96	81	103	95	108	121	107		120		182		,,,	0.0	a,	96	87	88	9/	.98	1.01	102	83	.97
3 8	15 Corn Novthern	75	102	92		76	76	95	.93	99			122		7,,	///	30		A)	74	2,	Ξ,	92	100	1,	91	a.c
1	16 Corn Meal Northern	120	107	30	78	4,	Ε,	70.7	36	35					7/0	7/0		/2	2		o'			122	0/		02
12 3°	17 Oats Northern	10		97	76	-//	170	10/	30	707		114	/32			1.3	90	6/	95		//3	10	104	1"/	12	oc.	03
120					15	94		90	112	98	86	117			95	114	82	105	1/2	-:0	77	9/	94	//8	100	92	109
13	18 Rice	72	73	80		73		75		70		85			107		82	84	69	65	24	93	89	101	77	69	78
	(19 Novs	137	127	101	51	57	99	93	73.9	216	116	116	//5	58	58	/2/	303	187	97	76	67	1/5	150	76	38	68	107
	(20 Coffee, Arazil	122	107	100		86		62	8.9	8.9	79	89	89	79	74	79	87	74	59	53	50	52	52	52	44	7/	79
	21 + Java	123	105	100	84	9/	91	77	80	80	75	75	84	84	75	75	78	73	68	5.9	63	5/	53	50	44	38	78
9	22 Tea, Young Hyson	165	153	161	156	154	147	164	163	125	102	105	106	103	97	176	1/3	125	107	100	101	100	.97	9/	85	83	66
(4)	23 " Souchong	204	191	2/8	205	200	194	207	163	117	92	.90	104	102	90	10	149	102	160	140	122	119	127	102	87	1/13	132
	24 " Imperial	409		387				-		278		-	250							184		203	193	141	150	157	177
	25 Molasses New Orleans	23		25	20		63		-			67		29	2A		56	54	44		63	60	62	1,	53	55	60
3	26 " Sugar House	150		161	137				112	1//			-		-	-								12	1 70		, a
	27 " Marana	122			/ 107	707					00	10/	140	100	743	//4	99	oc.	64	7/	96	89	87	96	179	86	00
2 5		' <i>'</i> '	//8	132	147	110	103	108	1/4	114	103	1/7	157	757	145	127	96	85	69	8.3	108	107	92	196	185	0/	150
F-54 54	26 Sugar, New Orleans	118	118	16	H	HIL	114	55	92	36	94	102	127	.97	98	100	85	-89	37	73	88	1 86	1.92	1.96	138	69	26

38 "

(37 Wool, Common

40 Cotton, Upland

Pulled

41 Sheeting, Russia Whit

45 Leather Hemlock Sole

43 Kides West Indies

46 Furs, Beaver

48 - Liverpool

49 Iron, English Bar

47 Coal Verginia

51 Nails, Wrought

58 Copper, Pig

57 Rum, Jamaica 58 Gin, Scheidam

59 Wine, Port 60 v Madiera

61 4 Charet

62 Glass American

63 Tallow, American

66 Suap, NY White

67 " Castile

70 Paint, Red Lead

71 Oil, Whale

12 " Sperm, Summer

Winter

68 Turpentine

69 Linseed Oil

74 Whatehone

23 "

64 Candles, Mould 65 " Sperm

53 Topaco, Kentucky 54 ~ Manus d #/ 55 Whiskey Homestia 56 Brandy, Cognic

SO Sheet

02 " Russia Brown

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AVERAGE INDEX NUMBER 119.5 115.5 115.1 112.

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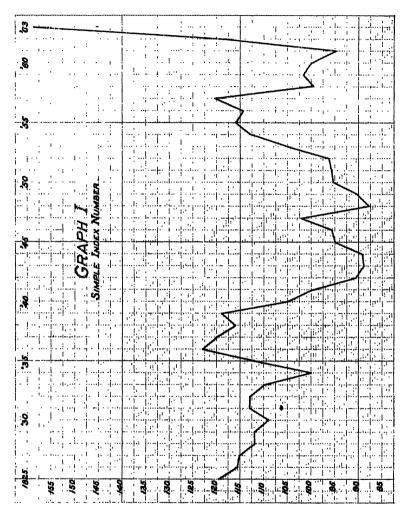
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16 1,7 20 2,7 20 3,7 20	125 26 339 36 66 65 107 178 35 36 107 178 35 37 178 37 179 38 46 32 76 32 76 32 76 32 76 32 76 32 76 32 76 32 76 32 32 32 32 32 32 32 32 32 32 32 32 32	131 28 28 33 74 29 61 29 61 29 61 29 61 29 61 29 65 69 69 69 69 69 69 69 69 69 69 69 69 69	297 396 397 397 397 397 398 397 398 398 398 398 399 398 398 398	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2/0 1/4 3/1 3/1 3/1 3/8 1/4 1/4 1/4 1/4 1/4 1/4 1/4 1/4	222 1000 100 100 101 101 101 102 102 103 103 103 103 103 103 103 103 103 103	103 137 104 109 109 101 126 125 31 108 108 39 102 60 88 62 38 109 108 108 108 108 108 108 108 108 108 108	237 /36 /// // // // // // // // // // // // /	202 154 36 100 100 100 100 100 100 100 10	147 119 100 100 100 100 100 100 100 103 103 103	100 100 100 100 100 100 100 100 100 100	## ## ## ## ## ## ## ## ## ## ## ## ##	157 83 69 175 181 82 183 183 184 185 185 185 185 185 185 185 185	132 99 80 152 105 132 105 132 142 143 143 143 143 143 143 143 143	10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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18 cents a pound. Other commodities were correspondingly high, as may be seen from Table I. Added to this, the crops in 1835 were a failure.* Wheat was imported in October,

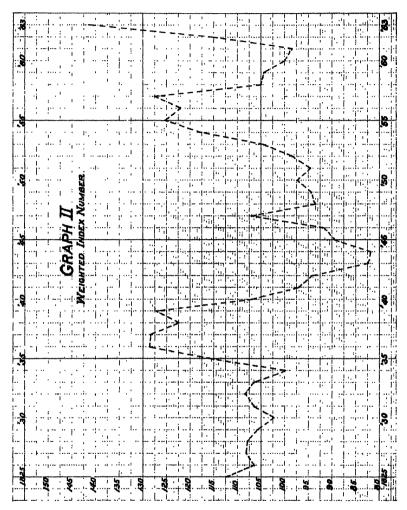


1835, and continued to be imported until the following spring. Flour was then quoted at from \$8.00 to \$16.00 per barrel.

On top of this crop failure came Jackson's specie circular.

^{*} Benton, Thirty Years' View.

Even after that prices bore up for fourteen months longer. Then came the crash. In 1837 the imports into the United States for consumption fell to \$113,250,000, a drop of \$76,730,-



000 from 1836. The sales of public lands fell to \$6,750,000, a decrease of \$18,000,000. The values of urban real estate were in some places cut in half. Before 1837 money had been borrowed on the basis of the prevailing inflated values, and

with the collapse of credit it became almost impossible for debtors to meet their obligations. In Mobile, Alabama, about 90 per cent. of the merchants failed, and in New Orleans practically every important business house found it impossible to pay its debts. Industry was for the time being suppressed. There was no manufacturing; the mills were closed. In May, 1837, the banks suspended specie payment. The government expenditures were almost doubled in one year, and as a result the treasury experienced a deficit of about \$12,000,000. The states fared even worse than the national government, and twelve of them repudiated their debts during the panic.

President Van Buren, who succeeded Jackson in 1836, reaped the whirlwind which Jackson had sown. With admirable nerve, ignoring thousands of petitions that voiced the popular distress and clamored for a change, he hewed to the line of policy that had been laid down by his predecessor. He did not lay the crisis at the door of Jackson for overturning the National Bank, but stated that the country must carry out the positive plan of being its own banker; that private and public finance must be separated.* He fathered the subtreasury system substantially as it exists today, and it was carried into effect in 1840, after Congress had hammered at it during all the interim. This left, nevertheless, the old, vexing question of the currency. The administration thought in line with democratic principles that the banking problem should be left for solution with the separate states. In 1837. by the president's recommendation, an extra session of Congress passed a bill authorizing the issue of \$50,000,000 in treasury † notes: \$40,000,000 of these were donated to the states in four installments.

This attempt to revive credit and business shows itself very distinctly in the curve of prices for the years 1838–39 (Graph I). The president in his message to Congress in the spring of 1839 states:

"By the curtailment of paper issues, by the sanguine and adventurous spirit of speculation, confidence has been restored both at home and abroad."

^{*} Sargent, Public Men and Events.

[†] Finance Reports, 1863, pp. 313-315.

But a relapse followed in 1839–40 as appears from the sudden descent of the price curve from an index of 119 in 1839 to one of 105 in 1840. In succeeding years, while the fall is not so rapid, it still continues, until in 1843 it reaches the lowest trough of this wave, 89 per cent. The general suspension of specie payments in May, 1837, had been followed by a reduction of bank currency in 1838 from \$169,000,000 to \$116,000,000. In 1839 it increased again to \$135,000,000, the banks then preparing for resumption of specie payments.* This had been effected in 1838 by the banks of New England and New York, but in the South and West resumption was not effected until 1842.

The Independent Treasury Act of 1840 provided that one fourth of the public revenues were payable in gold and silver after June 30, 1840, another fourth after June 30, 1841, another fourth after June 30, 1842, and after June 30, 1843, all public revenues, including postage, were made payable in specie. The results of this act were almost immediately apparent. For this and other more significant reasons, the fall of the price curve is greatly arrested after 1842 until in 1844 it again begins to climb.

But in the year 1843 a remarkable depression in the prices of nearly all staple articles in the home market is noticed. Prime beef was sold in the New York market at \$2.75 per barrel; hams at three and four cents per pound; unrefined sugar at four and five cents per pound; tobacco at two and three cents per pound; nails at four and five cents per pound; cotton at five and six cents per pound; and hops at six and seven cents per pound. Articles of foreign production were also held at prices much lower than in previous years: viz., coffee, six to seven cents per pound; port wine, fifty cents per gallon; Scotch pig iron, \$22.50 per ton.† The influences of the tariff of 1842 were felt in the better prices which prevailed toward the close of 1843. In 1846 a general reduction of tariff duties took place; but trade conditions were steadily improving, and prices accordingly rose. The ten years 1846 to 1855 constituted a period of unusual economic development, and

^{*} Finance Report, 1863, p. 311.

[†] Finance Reports, 1863, p. 321.

this is especially true of the years 1846 to 1850. At this time railway construction was in full swing; transportation facilities by land and water were being rapidly improved; and many new inventions of great importance, such as the telegraph, were being introduced.

We see from the graph of the general index number that beginning with the year 1848 this price curve takes another series of ambitious upward dashes. If the curve were smoothed from the beginning to the end of the whole period, it is notable that there would be a steady descent to 1848, then a steady rise for the rest of the period. Practically the same phenomenon occurred in the English price movement of this period. and formed the subject matter of Jevons' classical investigation of the amount of price inflation ascribable to the influx of Californian and Australian gold. In measuring this inflation Jevons used two methods. First, following a previous investigation by Cobden, he ascertained the average ratios of the prices of fifty chief articles of English commerce during the years 1850 to 1869, in relation to their average price in the year 1849. Secondly, he compared the two years 1858 and 1867 in which prices were lowest after the influx of new gold, with the prices in 1849, and found by this comparison what may be called the elevation of the normal price minimum. The two computations led Jevons to conclude that a permanent rise in prices of 18 per cent. had been accomplished. This, said Jevons, can only be attributed to the gold influx, since the other causes that entered to influence prices were at work as well before as after 1850; and since, according to Professor Cairnes, "the effect of these (the gold) discoveries is probably much greater than we can prove, because the course in prices was in previous years decidedly downwards, so that the new gold has both prevented a further fall and occasioned a rise in its stead."*

The following table supplies a comparison of our index numbers with the data from which Jevons computed the above result. The American index numbers have been recomputed on the basis of prices in 1848. The latter year was made the datum line for this comparison, because it

^{*} Jevons, Investigations in Currency and Finance, pp. 152-159.

marks the lowest point of prices in this period, whereas the year 1849 marks the minimum price level in the table of Jevons.

Year.	Jevons Average Ratio of Prices to those of 1849.	Our Average Ratio of Prices to those of 1848.
1847	122	116.5*
1848	106	100.0
1849	100*	102.9
850	101	108.8
851	103	109.1
.852	101	109.8
853	116	119.7
854	130	128.7
.855	125	132.2
.856	129	130.4
857	132	137.2*
1858	118*	113.5
859	120	115.8
1860	124	114.0
1861	123	
1862	124	
1863	123	
1864	122	
1865	121	
1866	128	
1867	118*	
1868	120	
1869	119	

^{*} Points of lowest price.

Following Jevons' methods, so far as our more limited data permit, it appears from the table that the normal price minimum was raised from a point represented by 100 in 1848 to a point represented by 113.5 in 1858—an increase of 13.5 per cent. The average of these index numbers for the years 1849 to 1860 inclusive—the war prices have to be ruled out in the American comparison—is 118.5 as compared with 100 in 1848.

Probably a better method of measurement for this country is found in a comparison of average prices in the ten years preceding 1848 with similar average prices in the ten years following 1848. Such a comparison was made and indicates that the price level was about 8.3 per cent. higher in the latter decade. Similarly the differences between the medians of the indices for ten years before and after 1848, made relative to

that year, was found to be from 5.2 to 10.7 higher for the latter ten years. In general it appears from these results that the effect of the new gold discoveries was somewhat more moderate in the United States than in England. This difference may be due to the fact that our measurement embraces three periods of business collapse and only two boom periods, while in the range of Jevons' later investigation the lean and fat years were more evenly represented.

From this brief discussion of the effect of the gold discoveries upon prices, we may return to note some of the other influences affecting the price movement. The Crimean war occasioned a large demand for breadstuffs and provisions from the United States. This is apparent in the higher prices of these commodities in 1855 over 1854. The importation of woolen and cotton goods and of iron was encouraged in following years by the reduced tariff which took effect in 1857. This necessitated the exportation of a large balance in coin and bullion, which may in part explain the relatively greater rise in prices in England as seen by Jevons' index numbers for these years.*

The years 1848 to 1857 were gala years of prosperity with only slight relapses in 1855 and 1856, an effect of the autumn of 1854, when there was a stringent money market and hard times, due to a panic in Wall Street. A noticeable depression is indicated by the price curve for 1855 to 1856. The succeeding year shows a brisk revival, and the curve mounts 4.4 per cent. more than it fell the previous year.

But after 1857 another serious crisis forces the index to drop from 120.3 to 99.5, which is the greatest drop for any one year during the period. This panic was caused by venture-some railroad building from 1846 to 1857. The speculation in stock and real estate was nearly as reckless as it had been in the years of 1834 to 1836,† and the Western banks were again indulging in an almost unchecked issue of paper money. As a result there was much extravagant living and an increased consumption of European luxuries. Horace Greeley wrote in 1857: "Set thy house in order; we are on the eve

^{*} Jevons, Investigations in Currency and Finance, p. 46.

[†] Blaine, Twenty Years in Congress, Vol. I., p. 207, ff.

of great financial trouble, for we have run too deeply in debt abroad. We are heavily in debt in Europe. Our merchants and bankers owe those of Great Britain and the continent. The country owes the cities, the farmers owe the merchants, two thirds of us are in debt."

Many explained the crisis as a direct result of the tariff of 1846, which induced the heavy buying of goods abroad and drained the country of specie to settle an unfavorable balance of trade. But it is safe to say that the paltry tariff reduction of five per cent. in the years 1846 to 1857 did not have such a great influence as politicians tried to establish. Overspeculation, caused by expansion of bank loans, inflated credit, and the stimulating influence of new gold are nearly if not quite sufficient to explain the depression.

By July, 1857, the general complaint of hard times was heard. When in August the Ohio Loan and Trust Company of Cincinnati failed, panic immediately resulted. and brokers were unable to meet their obligations. Deposits and consequently loans contracted in volume. The interest on loans rose by 3, 4, and 5 per cent. in one month. In September the banks of New York, Philadelphia, and New England suspended specie payments, as did later financial institutions all over the country. Merchants and manufacturers failed everywhere. The decline in prices was alarming, as is seen from the price curve. Flour and pork fell from an average price of \$5.96 and \$19.95 per barrel, respectively, in 1857 to \$4.29 and \$17.19 in 1858. The prices of almost all commodities depreciated from 25 to 75 per cent. Wages fell off. In New York City alone there was an army of thirty to forty thousand of unemployed. Rich and poor suffered alike.

But the panic was of short duration. In the next spring recovery is apparent. Gold came from England and California. Specie payments were resumed. Prices rose.* The machinery of commerce was once more able to speed up. During the summer of 1858 money was easy again. But in 1859 and 1860 a decline in the general price level is noted.

^{*} Blaine, Twenty Years in Congress; Schouler, History of the United States, Vol. IV, p. 386, ff.

TABLEM: WEIGHTED INDEX NUMBER OF YEARLY AVERAGE P. ES -NEW YORK MARKET

	WEIGHT	182	1826	1827	1828	1420	1830	1/0.2	1032	102	1000	702	1/0 24	د ارور	1/08	1/02	olyn,	0.0	1,00	2 /04	2 100			c , , , ,	
Or Bues Crime	I d	1260							1179												-1			6/89.	
a Mess			/593	-					1642								4 2 3	22. 561				-1		2 /28.	
3 m 3 Pork, Prime		385	1	320		4/5			4/5	425			650			1	-	25	1		2000	1		198	
3 4 " Mess	.5	390		365	375	350	1	-				460				585	-	35					335		
Smaked Ham	7	66	6.9	26	68	68	7	23	69		65	20	91	590 90			-	ن ساند	238	276	260	330	300	405	3/0
31 6 Card	a		195	228	171	147	2/6	243			2/3	252		-		-	- -	-		1,,,					
8 7 FEBA Day Cod		130		156	152	132	122	198	152	142	124	146			184	-	-	32 1 4	1		-		783		
8 1 Mackerei #/	2	50	62	64	64	66	70	76	74	80	74	06	116	1/8	/36	/56		2.2		128			148		154
9 Butter, Western Dairy	4	380		408	380	.3.36	332	364		-	and the same of th		428		48	1	1	1.4	1 to	-	+ !	-			/Oa
10 Cheese, American	/	25	78	25	59	59	59	59	59		69	75	89	9/	28	9/	Ť	F 200	68	54	1240				
(11 Wheat, Genesee	10	610	The state of the state of	660	810		720		-				TOURS OF THE PARTY	1190	1200	1	1	oc	/60			700	70		64
y 12 Wheat Flour, Superior	10	1000	940	1000					1120	-			10.00	1780	-	1420	+	1 22	1 4	950	Tomal .		1./	-	
3 13 Rye, Northern	6	390	510	492	390	480	468	1	-	1	480	-			256			62	674		492				534
4 Rye Flour, Pine	6	474	600	576	5/6	6/8	558	648	726		THE PERSON NAMED IN	240		1000			⊒ .	55	1 ==	504					
3 15 Corn, Northern	4	300	408	328	328	304	304	380	372		-		488	572	448	250		99	324		-				348
3 6 Corn Meul, Northern	4	3/2	428	360	3/2	308	292	404		428	388	456		540		5/2	Ħ.,	18	1	300		-		-	320
3 17 Pats, Northern	3	231	342	29/	2/6	252	23/	270	327		255		378		246	236	22	š	- 76	210	231	-			300
\$ 18 Rice	3	219	2/6	237	23/	2/9	185	225	246	234	2/3		270	294		321	2016	55	202		222				234
19 Yapıs	7	137	127	101	51	52	99	99	/39	216	1/6	116	111	50	58	121		42	97		67	115	150		38
(20 Coffee, Arugil	. 4	508	408	460	368	364	332	328	356	356	348	356	356	332	296	296		95	236	2/2	176	208		-	
21 v Java	4	492	420	420	356	364	364	308	320	320	300	356	336		300		312	42	200			-	-		176
22 Tea, Young Hyson	2 .	330	306		3/2	308	294	328	326	250	204	210	2/2	206	194	212	×20	ø	2/4	200	-			182	170
23 " Souchong	4	408	382	436	4/0	406	392	414		234		180	208	204	100	180	3.90	4	322	280	244	238	254	204	174
24 " Imperial	2	8/8	758		708	720		744	-	446		294	500	494	470	470	488	=	400	368	382	406	386	342	300
25 Melanses, New Orlean		146		150	140	128	126	122	128	100	124		184	158	156	140	1/12		/88	98	126	120	124	144	108
26 " Sugar Hause		300		322	274	274	242	200	221	222	198	2/4	280		246	228	178	#	-	142	192	178	174	/92	158
S 27 " Mayana	P	254	236	264	254			2/6	The same of the sa	228		2.74	3/4	-	270	-	792	200	/38	166	216	214	164	192	164
S 28 Sugar, New Orleans	3		354	336	333	303	3/8	255		288		306	381	291	284	26/	255		195	237		255	276	288	124
30 A Logs	3	4.12	387	396	396			32/		342		330	417	-		32/	247		2/3	270			3/2	288	186
	3	446		549	549	548	THE RESERVE	489		486	483	459	492		-	474			3/8	330	339	357		309	246
3/ Salt, Liverpool		289	264	246		C LONG THE REAL PROPERTY AND ADDRESS OF		211	220		-	185	210		216	194	188	3		160	154			148	/53
33 Pepper		248	268	300	263	255	247	268	258		203	/89	200	202	211		779	9		147	-	145		160	132
3 34 Raisins, Muscatel		143	237 /30	234	2/3	183	/83	193		/33	90	101	110	99	98	119	87	2	100	110		-	/36	87	74
35 Nucmeg	= 1	403	311	99	109	//9	99	99	119	85	62	//8	97		68	53	50	=		68	-	97	85	7/	65
36 Olive Oil		74	66	311 22	<i>310</i> <i>6</i> 3	63	330	347	340		284			282	279		200	4		203	235	274	33/	-	272
(37 Wood Common	3	273	246	204		177	180	225	77	82	74	93	89	76	88	82	05	7	74	67	73	72	70	92	84
38 " Pulled	3	324	285	2/3	240		-				246 459	276	345	357	349	3/5	226	-	246	765	206		-	2/3	2/3
1 39 4 Merino	3	29/	279	234	228	207		306		294		465 330	5/6		345	7	24.	9	29/	23/	-			29/	276
10 Cotton, Upland	10	1720				850			950				35/	342	23/	306	233	2	750	620		210		2/3	207
S & J & Sheeting Russia White		=	142	1/5	105	1000		1/2	111	105	91	A 7	112	//8	775	112	109	Ž		104	102	590 95		970	560
3 42 · Brown	, ,		108	103		105		109	103	97	84	.97	113	117	105	ASSESSMENT FRANCISCO	99	2	92	85	86	92	95	97	101
43 Hides, West Indies	2	130	118	104	112	106	114	128	110	104	94	108	104		82	10.	106		108	100	104	106	94	100	74
3 44 / Ja Plata	2	150	140	134	138	126	128	134	122	116	106	116	1/2	1/6	120		/22	o	102	100	-	98	96	96	76
45 Leather, Hemlock Sole	12	218	198	190	198	198	186	204	192					186		208	124	-	176		146		-	148	132
3 46 Furs Beaver	7	450	480	479	5/2	639	590	485	429	387		771 100	482		409		332	7		22/	278	23/		205	205
2 (47 Coat, Virginia	3	498	62/	6/8	59/	585	492	384	555	384	327		365		429	347	390	7	345	279	276	29/	3/2	309	294
18 " Leverpool	3	411	369	38/	387	372	3/8	336	408	365		324		360	-		297	7	254		294		255	261	294
3 2 49 Iron, English Bar	2	198	442	398	374	370	348	340	340	350	338	324	440	448	4/2	4/4	351	0	266	265		350		344	276
3 8 50 4 Sheet	2	121	128	114	110	1/2	1/2	112	112	110	5#	68	106	116	100	100	100	4	206	76	84	106	184	184	184
5/ Nails, Wrought	11					297	291	295	295	295	276	272	272	306	301	307	301	Ē	254	250		250		372	
\$ \S2 Copper, Pig	1	92	85	82	84	84	8/	83	82	77	75	76	96	87	79	79	85	3	80	79	8/	80	82	84	84
(53 Tobacco, Kentucky	4	296	268		204		276	224		248	384	400	396	380	440	6.0	4,	2	248	240	204	204	240	240	264
54 - Mgd #1	4	320	252	232	232	232	216	216	224	228			320	324	3/6	4/6	2	2	236	260	252	232	252	268	272
55 Whiskey, Domestic		236	258		202			284		274			332	326	322	324	22	2	170	194	212	206	192	252	214
3 56 Brandy Cognac	15	30	50	And the ball of the last of the		50	52	74	66	64			70	60	64'	68	6		68	86	100		114	1/12	106
57 Rum, Jamaica			6.9				78	77	77		78					/0/	Z	,	700		108	-		115	/3/
\$ \$ 58 Gin, Scheidam \$ 9, 59 Wine, Port		-	87 59	ATM INC.					128					/33		128	Z		/21					/32	
60 Madiera			25	56	58 71	46		37		44		92			44	42	=	- 1	32	29	40	The second second		32	An Annual
6/ Charet	ا∐وٰ⊟	94	90		THE RESERVE AND ADDRESS.		52 72	51 92	45 84	4 6			44		44	54	Ē	=	31	34	44	39	42	49	50
62 Glass, American	7		100				98	98	98	98			58	60	60	76	Ē	8	48	98		86	84	88	
63 Tallow, American	1211	80	9/	93	29	64	62	90	THE RESERVE AND ADDRESS OF	Address Sections of		8/	86	92 104	92	92	=	92	92	92		120	102		38
\$ 54 Candles Mould		64	68	THE CONTRACTOR AND ADDRESS.	65		54	63		94 70		82 63	53 69		84	34		75	70 59	68 37	66 59	68	72		80
8 68 Can ales, Mould 8 85 " Sperm		72	89	8/	Total Control		6/	74	84	88		12 70 10 10 10	85	86	85	105		20	75	69	8/	56	56	63	
	7	62	157		9/		78	85	85			6 5	62	85		3/	t صبحا	95	<i>05</i>		83	74	71	80	
67 Castile 68 Turpentine 68 Turpentine 70 Paint Red Lead 71 Oil, Whale 72 " Sparm, Summer	= 1 = 1	64	70	of some bosons							//9						IAC	36		116	90	e/	25 87	6 9 ///	80 107
3 68 Turpentine	##		24		8/	82				99		128		Ši	,	72	64	74		79	84	103			89
3 69 Linsked Oil	2			252		268					266				<u>.</u>	-58	242				262				200
70 Paint, Red Lead		150				NAME AND ADDRESS OF	106	THE RESERVE			103				7	11.9			9.9	87	87	87	87	87	87
9 71 Oil, Whale				/32		128					110				122	154	/de			140	148		134	144	136
2 72 " Sperm, Summer	2	84.	94			94					108						144	34	1200 1 1120	92		126	128	146	150
23 " Wenter	2	88	94	CONTRACTOR OF	THE R. P. LEWIS CO., LANSING		105				124			126	1,3		.321		114	96	and decrees		126	150	152
J4 Whalebone	7	30	37	50	50	37	32				22			25	2.	23		.25		The Rendered	1700 N	43	41		31
						#3	#																		-8-
WEIGHTED AVGE IND	EX NO	1124	106.5	08.1	079	05.8	022	106.5	1084	06.5	998	75.6	287	1284	į, į	4.24	OF A	25	00.	824	848	894	91.7	107.1	93.5
															4P* ~			· man comb							

RKETI	825	/	86.	3.° (BA.	SE:	186	o).						
97 1898 1899									1858	1859	1860	1861	1862	/863
82 /289 /86	1200	1102	list	//54	Idna	1172	1674	2115	/530	12/4	900	978	1148	1116
89 26/9 203	1525	1539	1863	1563	1899	1998	7657	2/33	1827	1323	900	990	/359	//8 <i>8</i>
10 320 345	320	430	535	5/5	450	620	6/5	200	330	455	500	445	390	465
05 310 300	295	340	480	450	385	490	520	555	480	460	500	420	345	400
	—	82	71	71	71		100	100	100	100	100	100		
43 195 174	168	144	255				303	-	273	-		240		270
92 154 132		174			176	200			178	-	200	158	184	304 210
20 <i>10a 88</i>	130	The second second	120	172			232	224 520		190 450	-	380		532
		320			98	524		.96	67	85	100	74	74	125
N 64 62		6/	74 740	940			1210				-			1100
20 780 890	030									990				1000
	468		582					100	528			5/0	576	
	486		588	-	1		1080	-	528	-	600	5/6	576	726
		336				-		440		454	400	332	336	484
68 320 320			384		408		396	404	404	424	400	3/2	352	488
54 300 276			306	339	384	429	309	375	324	345	300	256	-	
03 234 210		-	273	248	324	333	306	32/	240					
6 38 68	102	296	236	194				62	50	9/	100		/28	
08 176 200	348	284	264			1 -		328					644	
00 176 196	3/2	288		288	-	336		388						
92 170 166	_	_	170	150	-		-	142	120					
04 174 206			198	-	152	140	116 146	186 202				_	-	
42 300 314				122		-							-	
44 108 110		_	124 158					328				-		
192 158 17				154		-		356					-	
92 164 174 98 124 20		228		204	-	_	_	_			300	-	363	
288 124 20 288 186 24			-	2/3	_		-	396	286	201	300	256	343	486
309 246 25				-	273	26	32	387	30	300	300	24	5 351	450
149 153 14					175		102	88	78	94	100	80	121	/63
160 132 12			1/3	181	24	23	/ /50	116	97	97	100	10:		
82 24 70	95	110	124	144	144	142	152	152	119					
71 65 8	100	84	8/	114	110						-			167
302 272 21		5 231	207	24.				9 168					163	_
92 84 7			84		-		_			_	_	_		
2/3 2/3 23							26			_	-		9 401	9 55. 9 584
291 226 26					-		9 30	9 29	_			25		
213 207 21		-		2 364	2 25									0 673
970 560 76		0 1010									- 100			
97 97 10	-		98								- 10			
102 101 16 100 24 8			1/4		_		0 21	250	5 /9	2/12		-	2 24	: 234
36 76 8					¢ /8		0 22				0 20	0 /6	\$ 20	6 24
148 132 14		8 /36			5 20					4 23		0 18	6 24	9 274
205 205 20			_			-	9 /6.	10	3 //6	100	2 10	0 10	2 73	5 25
	23 3/4				-		5 32	/ 33	6 28	5 28			-	
261 294 2		7.0	2 27.	3 32	7 35	1 20	5 26	4 26	-		-	0 22		
344 276 24	0 19	6 /20	180	30	4 33		2 27							-
184 184 13	6 20	6 202	16	ø 16			0 23					-		-
372 20	4 20	4 204	1 /74	78	3 2/	3 /3	3 15	4 /3	5 110	87	10	0 91	90	74

334 288 240

.93

984 1048 1178 1253 122 1275 108 1044 100.

256 /98

//2 4/6

132 153

A3

117.

5 //6

1/3

708 540

560 484

1/8

/39

200

94

33/

115. 98.4

130

242 382

> 2/6

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W

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/06

III

/88

107.1

8/ 1/9 /3/

/3/

64

973 945

93.5 This decline continued at a slightly increased rate during the next year. It was probably due to the set-back to our national commerce caused by the growing gulf between North and South.

If we confine attention to the relative prices of the separate commodities, the economic law, laid down by Cairnes* and confirmed by Jevons, is revealed: that vegetable products are much more variable in price than animal products, since the former depend entirely upon the seasons. Hops are the most variable, as may be seen from Table II. They range in price from an index of 51 in 1828 to 303 in 1840. As might be expected, the grains,—wheat, rye, and oats,—are next in order of variableness.

The addition of the cost of manufacture to the price of the raw material ought, it would seem, to steady the price of the completed commodity. This seems to be confirmed by the statistics. Thus in 1843, when crops were unusually bad, wheat dropped from an index of 76 to one of 66. Wheat flour dropped only from 96 to 92. Other commodities of the list show the same to be true, even though the manufacturing process that entered into them was but slight. If there were enough manufactured articles in our list to justify such a study, it would be interesting and valuable to note what respective effects slack and prosperous times have had on the variableness between raw and manufactured products.

In Graph III the simple index numbers of four commodities, wheat, wool, cotton, and iron, have been plotted. The curves of these are seen to be much more irregular than the curve of the general index, showing clearly how the conditions governing any one commodity or even a restricted group of commodities, cannot be made a criterion, except in a very general way, of the general tendency of a market. This is so even though yearly averages be taken. There is only a general correspondence, in these separate commodity curves, to what one expects to find after having studied the general index curve.

Wheat begins the period with a tendency contrary to what

^{*} Essays in Political Economy, Theoretical and Applied, 1873.

would be expected, although the other three commodities have the same downward tendency which we noted in the general index curve. The rise of wheat in times of falling price can not be explained except by poor harvests of this staple, especially in foreign countries.* In times of wide commercial distress, as after 1825, the tendency will also be for the necessaries to remain constant in price, while the luxuries and articles that may be dispensed with when money is tight fall in price. This tendency of wheat to remain constant in times of price depression, its scarcity at home and exportation abroad would seem to explain the rise of wheat in these early years of the period. Throughout the whole period the variations in price of wheat are less than the fluctuations of the other three articles. If the curve of wheat were smoothed it would show a general rise after 1850. This is also true of the other commodities that have been graphed.

Iron fluctuates most in price. It illustrates very plainly Carnegie's saying that the iron and steel business is either a prince or a pauper. With almost vertical ascents in the boom years, 1835 to 1836 and 1852 to 1853, it falls almost as steeply from 1839 to 1842 and 1854 to 1859. It is remarkable that in the latter years the fall in iron predated that of the general index by about three years. This was doubtless caused by the large importations which then competed with home-produced metal, for the tariff of 1846 encouraged the importation of iron. The other fluctuations of iron, except the unusual fall from 1847 to 1851, are quite in conformity with the general index curve, though more pronounced.

Cotton has a peculiar course. It makes a deep descent from 1825 to 1827, then bobs up and down in about equal measure until 1831. There it begins a great rise, which holds out till 1836. Then it falls, following the general course of prices roughly, with slight recoveries in 1838 to 1839 and 1840 to 1841. The low point of this trough is reached in 1845. After that, beginning a year later than the rise of the general index, it mounts for two years, then falls to the lowest depth of trough in 1848. In this respect cotton alone corresponds with the general index number. Wheat has its minimum

^{*} Journal, London Statistical Society, Vol. XLII, p. 260.

price in 1844, wool in 1843, and iron in 1851. After 1848 cotton has a general bobbing ascent throughout the rest of the period. In 1862 it mounts skyward faster than any other commodity except wrought nails. This jump in price of cotton is readily explained by the great fall in its production in consequence of the war in the South.

Wool has a very irregular course. It follows the general downward trend of prices until 1829. The high prohibitive tariff of these early years discouraged the woolen industry. But in 1832, when this condition was removed, the price of wool mounted by bounds. It conforms generally to the course of average prices, except that it is never affected by such great rises in the boom periods. The railroad boom before the panic of 1857 did not so markedly raise its price as it did the price of iron and wheat. Cotton showed the same tendency as wool at this time, although cotton was as much affected by the speculation preceding 1837 as was iron, while wheat and wool were about equally affected in a less degree. Wool has many more lesser fluctuations than any of the other commodities. This is doubtless because it was not traded in as extensively in the market, but bought and sold mostly in jobbing lots.